DIRECT TESTIMONY OF
R. GLENN HUBBARD
ON BEHALF OF
SOUTH CAROLINA ELECTRIC AND GAS COMPANY
DOCKET NO. 2005-113-G

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, OCCUPATION, AND AREAS OF SPECIAL EXPERTISE.

A. My name is Robert Glenn Hubbard, and my business address is Graduate School of Business, Columbia University, 101 Uris Hall, 3022 Broadway, New York, New York 10027. I am the Dean of the Graduate School of Business at Columbia University, where I am also Russell L. Carson Professor of Finance and Economics, and Professor of Economics in the Faculty of Arts and Sciences. My special fields of research, writing, teaching and expertise are public economics, corporate finance and financial institutions, macroeconomics, industrial organization, natural resource economics, and public policy.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I received my B.A. and B.S. degrees in Economics from the University of Central Florida (summa cum laude) in 1979, an A.M. in Economics from Harvard University in 1981, and a Ph.D. in Economics from Harvard University in 1983.

During my professional career I have held many academic and government positions. From 1981 to 1983, I served as a Teaching Fellow and Resident Tutor at Harvard University. After receiving my Ph.D. in 1983, I served as a professor of economics at Northwestern University until 1988. During that

time I also held a half-time research appointment in the Center for Urban Affairs and Policy Research.

In 1988, I became a professor of economics and finance at Columbia University. I served as the Senior Vice Dean of the Graduate School of Business from 1994-1997, and have served as Dean of the Graduate School of Business at Columbia since 2004. During my service at Columbia I have also served as a visiting professor or visiting scholar at the University of Chicago, Harvard, and the American Enterprise Institute.

In government, I have served as the Chairman of the President's Council of Economic Advisers, a member of the White House National Economic Council and National Security Council, a member of the President's Council on Science and Technology, Deputy Assistant Secretary for Tax Analysis for the United States Department of the Treasury, and a member of the Panel of Economic Advisors in the Congressional Budget Office.

Additionally, I served from 1987-1988 as a John M. Olin Fellow in residence at the National Bureau of Economic Research.

Q. DO YOU SERVE ON ANY BOARDS OR COMMITTEES?

A. I currently serve on the board of directors of the following companies: ADP, Inc., Dex Media, KKR Financial Corporation, BlackRock Closed-End Funds, Duke Realty Corporation, and Ripplewood Holdings.

My role as a director or advisor to these firms has required me to assess their capital budgeting processes on several occasions, including the manner in

which the firms determine a cost of capital for use in evaluating alternative investments, including investments in equity and debt securities.

Q. PLEASE OUTLINE YOUR WRITINGS WHICH ADDRESS CAPITAL MARKETS AND INVESTMENTS.

A. I have published widely in the field of economics, finance, taxation, financial systems, and cost of capital. I have also published works specific to the economics of the United States natural gas industry. My curriculum vitae, attached as Exhibit No. ___ (RGH-1), names the publications and articles that I have authored as well as lists, in detail, my other professional accomplishments, distinctions, and professional associations. In addition to a number of articles, writings, comments, notes, papers, and edited volumes, I have authored two textbooks: *Money, the Financial System, and the Economy*, now in its fifth edition and originally published in 1994, and *Principles of Economics,* which is forthcoming. I have presented numerous papers to various committees and councils, including, for example, the National Bureau of Economic Research and several committees of the United States House of Representatives and the United States Senate.

Q. DO YOU CONSULT WITH INDIVIDUALS AND CORPORATIONS?

A. I have served as a consultant to various companies, including American Telephone and Telegraph Corporation ("AT&T"), Citigroup, Fannie Mae and ITU Ventures, and government and international agencies, including the Internal

Revenue Service, Social Security Administration, U.S. Department of Energy, U.S. Department of State, U.S. Department of Treasury, U.S. International Trade Commission, National Science Foundation, World Bank, Board of Governors of the Federal Reserve System, Federal Reserve Bank of New York and the Congressional Budget Office.

Q. PLEASE DISCUSS THE BASIS FOR YOUR OPINIONS IN THIS CASE.

A. I am qualified to offer the opinions expressed herein based on my studies, research, teaching and writing in the field of financial economics. In addition, I base my opinions on my experience as an investor and corporate director.

I frequently have been asked to consult and testify on matters concerning the cost of capital for corporations, including AT&T on numerous occasions during the middle and late 1990s.

I also have written or co-authored several articles on cost of capital issues, including "Inflation and the User Cost of Capital: Does Inflation Still Matter?" (with D. Cohen and K.A. Hassett),[1] "Telecommunications, the Internet, and the Cost of Capital" (with W. Lehr),[2] and "Tax Policy and Business Investment" (with K.A. Hassett).[3]

My opinions expressed herein are based on my analyses of the relevant materials I and those under my supervision have reviewed to date coupled with my years of teaching, writing, researching, consulting, and lecturing in the fields

[1] This article appeared in *The Costs and Benefits of Price Stability*, M. Feldstein, ed., University of Chicago Press, 1999.
[2] This article appeared in *The Internet Upheaval*, I. Vogelsang and B. Compaine, eds., MIT Press, 2000.
[3] This article appeared in *Handbook of Public Economics*, A.J. Auerbach and M. Feldstein, eds., North-Holland, 2002.

of corporate finance, cost of capital, financial markets and investments. I may supplement, refine, or revise my analyses as appropriate based on additional testimony, documents, or other materials that may become available.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to express expert opinions on how the cost of capital should be estimated. Specifically, on behalf of South Carolina Electric & Gas Co. ("SCE&G" or "the Company") – which is wholly owned by SCANA Corporation ("SCANA") – my services have been engaged to provide advice, counsel and expert testimony on the following subjects:

1. The cost of equity capital for SCE&G's natural gas distribution operations (for ease of reference, I will refer to these operations from time to time below as "SCE&G-GD").
2. The reasonableness of using SCE&G's capital structure for its gas distribution operations.
3. The overall fair rate of return for SCE&G's natural gas distribution operations.

Q. WHAT DOCUMENTS / MATERIALS DID YOU CONSIDER IN REACHING YOUR OPINIONS?

A. I have examined publicly available annual reports and various financial and business forms filed with the Securities and Exchange Commission ("SEC") by SCANA and various natural gas distribution companies over the past two to

three years, as well as SCE&G's rate filing in this case. I have relied on the information stored in proprietary databases maintained by the Center for Research in Securities Prices ("CRSP") at the University of Chicago, Compustat, Bloomberg, and Yahoo Finance. I have examined analyst reports pertaining to SCANA and other natural gas distribution companies published by Value Line and by Zacks. I also have reviewed and/or relied on the *Valuation Edition (2005 Yearbook)* published by Ibbotson Associates ("Ibbotson"), other Ibbotson publications, prior rate of return testimony and various academic articles and books pertaining to finance and/or the cost of equity capital. Finally, I have relied on my own years of experience as a student and professor of finance and business, as a government official, and as a member of the board of directors of several firms.

Q. ARE THERE ESSENTIAL STANDARDS THAT APPLY IN SETTING PUBLIC UTILITIES' ALLOWED RATES OF RETURN?

A. In determining an appropriate rate of return on common equity capital for a regulated public utility, the interests of both the customer and the Company need to be considered. Indeed, these interests are partially countervailing. All else equal, customers desire a lower return on equity, while investors in the Company's debt and equity securities generally desire a higher return. On the one hand, if the rate of return on equity is set too high, customers will be penalized. On the other hand, if the rate is set too low, the Company will have a difficult time attracting equity and debt investment, thereby compromising its

creditworthiness, the safety and efficacy of its existing operations, its ability to attract and retain talented employees, and its ability to make the necessary capital expenditures required to improve productivity, and to foster economic development, job attraction and retention in the state. Compromise in these areas could jeopardize the longer-term viability of the Company. Hence, when determining a "fair and reasonable" rate of return on equity, the partially competing interests of customers and employees/investors must be balanced.

I use the term, "partially," when describing the competing interests of customers and employees/investors because their interests in setting an appropriate rate of return also are clearly aligned in important ways. For example, it is in the best interest of all of the Company's stakeholders that the Company be viable in the long-term. Thus, while customers desire a lower approved rate of return on equity capital in the short run because it produces lower rates, they do not want the return set so low that the firm's long-term viability is threatened.[4]

From an economic perspective, two landmark U.S. Supreme Court cases, namely *Bluefield*[5] and *Hope,*[6] defined principles for how the partially competing interests of a regulated entity's stakeholders can be balanced in setting an appropriate rate of return to allow regulated utilities to earn on their invested

[4] It is also reasonable to believe that the Company's customers desire as much stability and predictability as possible when it comes to energy prices. For example, the Weather Normalization Adjustment and the Natural Gas Rate Stabilization Act in South Carolina represent attempts to reduce price fluctuations. These provisions and their effect on SCE&G-GD's risk as it pertains to SCE&G – GD's cost of equity capital are discussed further below.

[5] Bluefield v. Public Service Commission, et al., 262 U.S. 679, 43 S.Ct. 675, 67 L.Ed. 1176, 1923 U.S. LEXIS 2676 (1923).

[6] Federal Power Commission, et al. v. Hope Natural Gas Co., 320 U.S. 591, 64 S.Ct. 281, 88 L.Ed. 333, 1944 LEXIS 1204 (1944).

equity capital. From an economic perspective, the main principles derived from these decisions are that a utility should be allowed to earn a return on equity that is commensurate with returns on investments in other firms that have comparable risks; and at a sufficient level to ensure that the firm is able to attract capital to maintain its creditworthiness and financial integrity at a reasonable cost.

Q. ARE THESE STANDARDS FROM *BLUEFIELD* AND *HOPE* CONSISTENT WITH FINANCE THEORY?

A. Yes.

Q. PLEASE EXPLAIN.

A. A fundamental tenet of finance theory, which also is consistent with common sense, is that investors require higher expected returns on investments that are riskier as compensation for bearing the greater risk.[7] This basic principle directly supports the first standard, that utilities should be allowed to earn a rate of return commensurate with the returns earned on investments in companies of comparable risk. If this standard is applied properly, then the greater the risk associated with a utility's securities, the greater will be its allowed rate of return.

In addition, the *Bluefield* and *Hope* standards are consistent with the basic financial concept known as the "opportunity cost of capital." Opportunity cost is a concept from economics which recognizes that, when an economic actor such as an investor commits to a particular course of action, he or she incurs a real

[7] That is, one cannot earn higher returns without taking more risk. In common sense terms, there is "no free lunch" in the world of investments and modern financial markets. See, *e.g.*, R.G. Hubbard, *Money, the Financial System, and the Economy*, 5th Edition (Addison-Wesley Publishing Company, 2005), p. 94.

economic cost equal to the economic profit that he or she could have earned on his or her next best alternative. For example, an employed person thinking of attending business school needs to consider not just the cost of tuition and books, but also the foregone cost of earning a salary for the time that she will be in school. The foregone salary is the employed person's opportunity cost of attending business school. The higher compensation and greater advancement opportunities to be derived from an advanced business degree must outweigh this foregone-salary opportunity cost, in addition to covering the out-of-pocket costs such as tuition and books.

Similarly, a potential investor in a firm's securities must consider not just the out-of-pocket costs of investing, such as brokerage fees, but also the profits or other benefits that he will forego by using his capital to buy the firm's securities, rather than spending it or investing it in alternative securities. The foregone investment profits (also known as "returns") and/or other benefits (collectively, opportunity costs), are the most significant costs the investor will face in deciding how to invest his capital.

This concept of opportunity cost can be difficult to grasp because it is not an "out-of-pocket" cost. But it is a real economic cost nevertheless. In the case of the opportunity cost of capital, the opportunity cost is expressed as the rate of return that investors must be offered in order to part with their capital. In other words, from the point of view of a potential investor in a regulated utility's equity securities, the rate of return on that investor's next best alternative investment (that is, with equivalent risk) is the opportunity cost of investing in the regulated

utility's securities. A firm wishing to raise capital from this investor must "pay" the investor this opportunity cost in the form of an equivalent expected rate of return. In effect, the issuing firm must discount the price of its securities sufficiently such that investors feel that the expected rate of return on those securities is commensurate with their risk, compared to the offerings of other firms.

The opportunity cost of capital for SCE&G's gas distribution operations, measured as a foregone investment return, is the subject of my testimony in this case.

Q. FROM AN ECONOMIC PERSPECTIVE, HOW DOES THE OPPORTUNITY COST OF CAPITAL CONCEPT RELATE BACK TO THE *BLUEFIELD* AND *HOPE* STANDARDS?

A. The opportunity cost of capital is the rate of return that will satisfy both standards simultaneously. The first standard holds that a utility must be allowed to earn a rate of return commensurate with its risk. The second standard states that a utility must be able to attract sufficient capital at a reasonable cost. Investors will not be willing to provide capital at a reasonable cost (second standard) if the utility does not offer an expected rate of return commensurate with its risk (first standard). That is, investors will not provide capital to the utility unless the investment's risk and return characteristics are at least as favorable as the expected rates of returns and risks of their next best alternative investments. This return on alternative investments of equivalent risk is the

opportunity cost of capital. In more concrete terms, if a regulated company is not earning sufficient profits relative to its risk, it will have a difficult time attracting the equity investment required to maintain its long-term viability.

Hence, the *Bluefield* and *Hope* decisions provide for a framework that is consistent with financial theory regarding appropriate rates of return or costs of capital.

Q. HOW HAVE YOU DETERMINED THE APPROPRIATE COST OF CAPITAL IN THE PRESENT CASE?

A. I have informed my judgment using two widely accepted methodologies to determine the appropriate cost of capital for SCE&G's gas distribution operations. These models are (i) the Discounted Cash Flow ("DCF") Model, and (ii) the Capital Asset Pricing Model ("CAPM").

Q. WHY DID YOU CHOOSE TO USE THESE TWO MODELS?

A. The DCF Model and CAPM are the most widely accepted methods for determining the cost of capital, both by industry practitioners and finance academics. The models' wide acceptance is based on their strong theoretical underpinnings and many years of empirical studies that have validated the models' predictions. As I discuss later in my testimony, each model has its strengths and weaknesses for estimating the cost of capital for SCE&G-GD. But both methods yield critical insights. Sole reliance on either method in my

judgment would lead to a biased estimate of the appropriate cost of capital in this case. Accordingly, I rely on the results of both the DCF Model and the CAPM.

Q. PLEASE EXPLAIN THE DCF MODEL.

A. The premise behind the DCF Model is that the current value of a security is the sum of all expected cash flows from that security, discounted into present day dollars.[8] The equation takes the form:

$$P_o = \sum_{i=1 \text{ to } n} \{CF_i / (1+r)^i\}$$

where, P_o is the current price (market value) of the security

CF_i is the cash flow from the security in period i

r is the discount rate for the cash flow.

Assuming a constant discount rate, that CF_i grows at a constant rate, and an infinite number of periods, and recognizing that dividends are an important cash flow that an investor receives from holding a share of common stock, solving for r gives:

$$r = CF_1/P_o + g$$

where, CF_1 is the expected dividend in the next period,

P_o is the current stock price,

g is expected long-term dividend growth, and

r is the expected return on equity (the variable of interest).

A form of this equation is often referred to as the "Gordon Growth Model," after Professor Myron Gordon at the University of Toronto. All of the variables on the

[8] See, *e.g.*, R.G. Hubbard, *Money, the Financial System, and the Economy*, (Addison-Wesley Publishing Company, 2005), 5th Edition, pp. 209-12.

right hand side of the Gordon Growth Model equation (that is, the variables necessary to solve for r) can be ascertained readily for publicly traded companies, thereby allowing one to develop estimates of their expected returns on equity. Specifically, P_o can be obtained from any number of sources, including the *Wall Street Journal*. The input, g, can be determined based on published forecasts by security analysts. CF_1, or the dividend in the next period, can be calculated based on the current year's dividend for each company (D_o) adjusted for one year of growth ($D_o (1 + g)$).

Q. WHAT ARE THE STRENGTHS OF THE DCF MODEL FOR DETERMINING SCE&G-GD'S COST OF CAPITAL?

A. The DCF Model has several important strengths in this case. First, it is an intuitive and direct measure of the expected rate of return on an equity security or share of stock in that it ties the current value of that share to the future expected cash flows that an investor can expect to receive from that share. It is axiomatic from the perspective of finance theory that an investor will not pay more for a share than the present discounted value of all of the cash returns she expects to receive from that share, where the discount rate is the appropriate risk-adjusted cost of capital or rate of return, r. Second, the inputs to the DCF Model can be obtained readily from publicly available data sources as discussed above. Third, while determining a growth rate input to the DCF Model is generally problematic (as discussed below), it is potentially less problematic for public utilities such as SCE&G-GD because, over the long run, their earnings are likely to grow at a

more predictable rate than, for example, an internet startup firm. Finally, the model has withstood the test of time. It was originally conceived in 1938[9] and was "rediscovered" by Gordon and Shapiro in the 1950s, yet still is in use today.[10]

Q. WHAT ARE THE WEAKNESSES OF THE DCF MODEL?

A. The first difficulty in implementing the DCF Model and interpreting its results in this case is the need to develop a reliable forecast of the long-term growth rate in future dividends (g). Such forecasts inevitably require judgment and an effort to assess the effect of future trends on a firm's operations. History has shown this to be a daunting task in financial markets, as few investment managers have been able to achieve performance that is consistently better than the market averages over the years.[11] If accurate forecasts were possible, one would expect to observe more investment managers outperforming the market. This observation holds even for public utilities.

A second difficulty is that the DCF Model does not explicitly consider risk, or the potential volatility of future returns. Rather, it considers risk implicitly, in that the current stock price should be lower for firms with greater risk because investors discount the future returns for such firms at a higher rate. In that case, if the riskier firm's dividends are approximately equal to those of other firms, the dividend yield component of the model will be greater, as will the

[9] See, *e.g.*, Richard A. Brealey and Stewart C. Myers, *Principles of Corporate Finance*, 7th Edition (McGraw-Hill, 2003), p. 65.
[10] See, *e.g.*, Richard A. Brealey and Stewart C. Myers, *Principles of Corporate Finance*, 7th Edition (McGraw-Hill, 2003), p. 65.
[11] See, *e.g.*, Charles J. Corrado and Bradford D. Jordan, *Fundamentals of Investments: Valuation and Management*, 2nd Edition (McGraw-Hill, 2002), pp. 237-8.

resulting cost of equity. However, management of riskier firms are reluctant to declare higher dividends.[12] So the DCF Model's failure to explicitly consider risk may in fact lead to a downward bias in the expected rate of return.

A third difficulty is that the single-stage representation of the DCF Model assumes that the dividend growth rate used continues into perpetuity. Given that forecasts extending even a few years into the future can be highly unreliable, the assumption that a growth rate will be the same in perpetuity is potentially problematic. It is possible, though, to use a multi-stage DCF Model to correct this shortcoming.

A fourth issue is that the DCF Model may understate the rate of return that is appropriate in a regulated utility context when market-to-book ratios are greater than one. To see why, note that the rate of return determined in a regulatory proceeding is applied to the firm's rate base, which is based on the book values of the firm's assets. However, the dividend yield component of the DCF Model is based on the market price of the firm's equity. If this market price is greater than the book value of the firm's equity (that is, the market-to-book ratio is above one), then the dividend yield component of the DCF method will be depressed (see DCF Model equation). This implied expected rate of return will then be too low to apply to the firm's rate base if one is seeking a cost of capital that is high enough for the firm to compete for capital in the marketplace.

Fifth, it is difficult or impossible to apply the DCF method to companies that do not pay dividends.

[12] See, *e.g.*, Richard A. Brealey and Stewart C. Myers, *Principles of Corporate Finance*, 7th Edition (McGraw-Hill, 2003), pp. 437-8.

Finally, a weakness of the DCF Model in this particular case is that it does not provide an explicit framework for including a size premium to reflect the fact that SCE&G-GD is a "micro cap" operation[13] and that the comparable publicly-traded firms for which sufficient data are available are significantly larger and, therefore, less risky. As a result, in this case the DCF method produces a cost of capital estimate that is more likely to be biased downwards. In contrast, the CAPM provides a framework for explicitly including a small capitalization risk premium.

Q. PLEASE DESCRIBE THE CAPM.

A. The Capital Asset Pricing Model, or CAPM, has its origins in modern portfolio theory, which was developed in the 1950s and 1960s by Harry Markowitz (1952), William Sharpe (1964) and John Lintner (1965).[14] The creators of this paradigm began with the observation that investors in equity securities can diversify their portfolios relatively cheaply and easily. In that case, it follows logically that the market prices of equity securities should depend only on their incremental contribution to the overall risk of a portfolio, not their total risk, where risk is defined as the volatility of returns on the portfolio or security. This incremental contribution to the risk of a portfolio is greater if the correlation between the returns on the individual security and the returns on the market as a

[13] Later in this testimony, I discuss the reasons that SCE&G-GD's cost of capital must be estimated as if it were a stand-alone, micro cap entity.

[14] Harry M. Markowitz, "Portfolio Selection," *Journal of Finance*, Vol. 7, 1952. pp. 77-91; William F. Sharpe, "Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk," *Journal of Finance*, Vol. 19, 1964, pp. 425-42; John Linter, "The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets," *Review of Economics and Statistics*, Vol. 47, 1965, pp. 13-37.

whole is higher. In other words, if the returns on a security are highly correlated with the returns on the market, it will be difficult or impossible to reduce the risk of the security through diversification. Such a security would be riskier in a way that would lead even fully diversified investors to require a greater expected return to hold it. That is, the cost of capital associated with that security would be higher.

This fundamental insight led to the development of the CAPM, which is considered to be a fundamental paradigm of finance theory. The CAPM provides a method for quantifying the cost of capital for assets that are risky in the sense that they are highly correlated with the market. This type of risk is referred to as *undiversifiable risk* or *systematic risk* or *market risk*. In the CAPM, this risk is quantified in a variable referred to as "beta."

The idea behind the CAPM is that investors demand a higher return for assuming additional market risk (the "risk premium"), and that higher-risk securities are therefore priced to yield higher expected returns than lower-risk securities. The relationship between the risk premium and the return for a particular stock is proportional to its beta, which is a measure of market risk as discussed above. A beta of one implies that the stock has a market risk that is identical to that of the market as a whole; a beta greater than one implies that the stock is on average riskier than the market as a whole; and a beta less than one implies that the stock is on average less risky than the market as a whole. The original CAPM equation is:

$$r = R_f + \beta(R_m - R_f)$$

where r is the return on equity (the variable of interest)

β is beta

R_m is the return on the market as a whole, and

R_f is the risk-free rate of return.

$(R_m - R_f)$ is often referred to as the equity or market risk premium and measures the excess return of the market over the risk-free rate.

Hence the CAPM elegantly describes how, all else equal, an investor taking on more market risk (that is, with a higher beta stock) will expect to be compensated at a higher rate of return. Moreover, the CAPM explicitly includes a premium for the only type of risk, systematic risk, that investors should price into stocks, given investors' ability to diversify their portfolios.

Q. IS IT APPROPRIATE TO USE THE ORIGINAL CAPM EQUATION WHEN ANALYZING THE COST OF CAPITAL FOR SMALL CAPITALIZATION FIRMS?

A. No. Since the CAPM was originally developed, many researchers have hypothesized that companies with smaller market capitalizations ("small cap") face systematic risks and uncertainties that larger companies ("large cap") do not. If this hypothesis is true, finance theory would suggest that investors will demand a higher rate of return from small cap companies compared to large cap companies.

Empirical research into this question has, on balance, supported the existence of an additional risk premium for small cap firms that is not captured by the original CAPM betas. For example, in a 1981 paper, Rolf Banz first documented that that the empirical evidence was consistent with the small cap hypothesis.[15] In 1992, Eugene Fama and Kenneth French furthered this argument in a well-known publication, in which they found that "size" and "book-to-market" ratios together captured the cross-sectional variation in average stock returns better than the original CAPM beta alone.[16] In its 2005 *Valuation Edition* yearbook, Ibbotson demonstrates the importance of the small cap premium by plotting beta versus the arithmetic mean return of the decile portfolios of the NYSE, AMEX, and NASDAQ (by market capitalization). As is evident from this graph (which is reproduced as my Exhibit No. ___ (RGH-10)), the original CAPM accounts for the full arithmetic mean return for only the largest of the companies in the sample. As the average size of the company shrinks, the underestimation of the original CAPM becomes more apparent.

Based on this theory and empirical evidence, many practitioners have argued that a "small cap premium" must be included in the CAPM to capture the size effect. For example, Ibbotson suggests the following formula for application of the CAPM:

[15] Rolf Banz, "The Relationship between Return and Market Values of Common Stocks," *Journal of Financial Economics*, Vol. 9, 1981, pp. 3-18.
[16] Eugene F. Fama and Kenneth R. French, "The Cross-Section of Expected Stock Returns," *Journal of Finance*, Vol. 47, 1992, pp. 427-65.

$$r = R_f + \beta(R_m - R_f) + SP_s$$

where r, R_f, R_m, and β are as defined above, and SP_s is the small cap premium.

I have used this equation, which includes an adjustment for the additional risk of a small cap firm, for my CAPM analysis in this case. The specific method that I have used to calculate my small cap premium (SP_s) is described later in this testimony.

Q. WHAT ARE THE STRENGTHS OF THE CAPM?

A. First, the CAPM explicitly addresses the fundamental risk-return tradeoff in finance in an intuitive way, in that it holds that the rate of return that investors expect on the securities of companies must be greater than the rate of return for a risk-free asset, such as the return on U.S. Treasury bonds.

Second, in calculating the amount of this risk premium, the CAPM explicitly recognizes that investors are able to easily diversify their portfolios and, therefore, that only market or systematic risk will determine the price of a security.

Third, the CAPM relies on market-based measures for its inputs that can be ascertained readily. For example, one can observe the historical relationship between the returns on a company's stock and the returns on the market (beta) using publicly available stock price and dividend information. In addition, one can observe the equity risk premium for periods extending as far back as 1926 or earlier.

Fourth, the CAPM is widely used and accepted. For example, according to a 2001 study, 74 percent of firms always, or almost always, used the CAPM to determine the cost of capital.[17]

Fifth, the CAPM provides a framework for explicitly quantifying and including the additional risk premium that attaches to the cost of capital for small capitalization stocks. This capability is particularly important in this case because as discussed later in this testimony, SCE&G-GD's cost of capital is appropriately analyzed as if it were a stand-alone, "micro cap" company.

Q. WHAT ARE THE WEAKNESSES OF THE CAPM?

A. First, despite the fact that inputs to the CAPM can be calculated in a relatively straightforward fashion using historical data, one must still apply judgment when using these inputs to determine a company's cost of capital. This is because determining the cost of capital is fundamentally a forward-looking exercise and judgment must be applied when specifying the conditions that will hold in the future. For example, if historical data are used to estimate beta and that historical beta is used without adjustment, then one is implicitly making a judgment that the conditions existing prior to the cost of capital date generally will continue into the future.

Second, even after a small capitalization adjustment is incorporated into the CAPM, there is evidence that the model may not capture all of the factors that might be relevant for measuring the market risk of a particular security or other

[17] John Graham and Campbell Harvey, "The Theory and Practice of Corporate Finance: Evidence from the Field," *Journal of Financial Economics,* Vol. 60, 2001, pp. 187-244.

asset. For example, for financial firms in particular, interest rates might be an additional risk factor that explains the returns observed in equity markets. In response to this observation, researchers have developed other approaches, such as "Arbitrage Pricing Theory" ("APT"), which seek to identify the most complete models for explaining the historical risk and return characteristics of common stocks by including such variables as interest rates or macroeconomic variables such as disposable income. Such potentially more complete models could then be used to determine a cost of capital by projecting the values of the different variables into the future.

The APT and similar models are complex to implement and are less directly tied to the fundamentals of portfolio theory than the CAPM. They also require forecasting the values of multiple variables into the future. Perhaps for these reasons, the APT and similar models are not widely used by practitioners. Thus I have not attempted to apply such models to inform my opinion of the appropriate cost of capital in this case.

Q. IN LIGHT OF THESE STRENGTHS AND WEAKNESSES, TO WHICH MODEL DO YOU GIVE MORE WEIGHT?

A. I have followed closely the research into the appropriate methods for determining the cost of capital over the years and recognize that there are practitioners who believe that the CAPM is superior to the DCF Model and vice versa for use in determining the cost of capital. In particular, certain practitioners feel that the DCF Model is a better method than the CAPM for determining the

cost of capital for public utilities because the utilities pay dividends and their growth rates are thought to be more predictable than those of unregulated firms. However, as noted above, the DCF Model suffers from its own weaknesses, including the lack of an explicit treatment of risk, the lack of reliability in analysts' growth estimates and the lack of an explicit framework for including a small cap risk premium.

After considering the strengths and weaknesses of both models, and based on my own experience and research, I have decided to apply equal weight to the results of both the DCF and CAPM methodologies in this case.

Q. HAVE YOU REVIEWED THE TESTIMONY RECENTLY PREPARED BY PROFESSOR BURTON G. MALKIEL ON BEHALF OF SCE&G?

A. I have.

Q. WHAT IS YOUR OPINION OF THAT TESTIMONY?

A. To begin, I have the greatest respect for Professor Malkiel, having followed his work over many years and interacted personally with him on a number of occasions. In addition, I found his analysis of the cost of capital based on his application of the DCF Model to be fundamentally sound, as well as his inclusion of flotation costs in his final cost of equity capital to be used for rate-setting purposes. Professor Malkiel also provides strong support and evidence for the need to include a premium for the additional risk that attaches to small capitalization business operations such as SCE&G-GD when performing a CAPM

analysis. I agree that this approach is necessary, as discussed elsewhere in my testimony.

I have noted that Professor Malkiel did not include a CAPM analysis in his report. In his expert opinion, the CAPM methodology was "likely to produce unreliably low estimates of the cost of equity capital."[18] In my own experience and opinion, the CAPM's strengths clearly outweigh its weaknesses as discussed above. In addition, I have used a version of the CAPM that addresses a primary shortcoming of the original CAPM model that was identified by Professor Malkiel – specifically, its lack of an adjustment for the additional risk of small capitalization firms. My CAPM analysis incorporates such a premium.

In addition, Professor Malkiel referred to the tendency of the original CAPM to understate the returns for low-beta stocks.[19] In making this criticism, he appears to have been referring to the fact that empirical studies have found that low "raw" betas understate future returns.[20] I agree with Professor Malkiel that this gap is a shortcoming of the original CAPM and have adjusted for it explicitly by using betas that are mathematically corrected for the tendency of the original CAPM to understate future returns in the case of low-beta stocks (see discussion later in this testimony).

Thus, my CAPM analysis addresses two shortcomings identified by Professor Malkiel and is an integral part of my overall cost of capital methodology. I have given it equal weight with the DCF Model in arriving at my opinion of the cost of capital for SCE&G's gas distribution operations. In fact, as

[18] Rebuttal Testimony of Burton G. Malkiel, Docket No. 2004-178-E, p. 5.
[19] Rebuttal Testimony of Burton G. Malkiel, Docket No. 2004-178-E, p. 5.
[20] Rebuttal Testimony of Burton G. Malkiel, Docket No. 2002-223-E, p. 3.

discussed later in my testimony, giving equal weight to both models can be viewed as conservative (in the sense that it produces a lower cost of capital) in light of the inability of the DCF Model to allow for an explicit small capitalization risk adjustment.

Q. HOW DID YOU IMPLEMENT THESE MODELS IN THIS CASE?

A. I have implemented my DCF and CAPM analyses of SCE&G-GD's cost of equity capital in three broad steps. I first identified a sample of public companies with key fundamental risk characteristics similar to those of SCE&G's gas distribution operations. Next, I gathered the capital markets data necessary to calculate the inputs to the DCF Model and the CAPM for each of the sample companies. Once I had these inputs, I calculated costs of capital for each company and determined the average/median values under each method. Finally, I added an estimate of flotation costs to get the final cost of equity capital that I would recommend the Commission adopt in setting rates for SCE&G's gas distribution operations.

Q. WHY DID YOU RELY ON DATA FOR A SAMPLE OF COMPARABLE PUBLIC COMPANIES RATHER THAN DATA FOR SCE&G OR SCANA?

A. There is an oft-used line to the effect that "The cost of capital depends on the use to which it is put." This statement means that the cost of capital for a particular investment depends only on the risk of that particular investment, and

not on the risk or identity of the investor. For example, assume that a regulated utility and an internet startup both buy Treasury bonds, which are a risk-free investment. The cost of capital for this investment is exactly the risk-free rate, regardless of which firm purchases the security. In either case, the capital is being used to buy Treasury bonds and, therefore, it is the risk of the Treasury bonds that determines the appropriate cost of capital. The fact that the utility's other operations are less risky than the internet startup's operations is not a relevant consideration.

Applying this concept in this case, the appropriate unit of analysis for SCE&G's gas distribution operations is the division itself, not SCE&G or SCANA, the ultimate parent corporation. It is the risk of the gas distribution operations, not the other operations of SCE&G or SCANA that is relevant to determining the appropriate cost of capital.

Q. WHAT ARE THE IMPLICATIONS OF THIS FUNDAMENTAL APPROACH?

A. SCE&G-GD's cost of capital depends upon the risk of those operations and only those operations. Two important characteristics that bear on this risk include the uncertainties inherent in a natural gas distribution business, such as the volatility in gas usage and/or profits due to swings in the overall economy and, in this case, the small size of SCE&G's gas distribution operations. As discussed above, finance theory and empirical studies suggest that smaller

companies should be riskier. This risk is independent of and additive to such firms' market risk.

In fact, SCE&G-GD likely would be considered a "micro cap" company if it were a stand-alone publicly-traded entity. Ibbotson defines "micro cap" as having a market capitalization of less than $505 million.[21] Because the natural gas distribution unit of SCE&G is not a stand-alone publicly traded company, I cannot employ the Ibbotson definition directly. That said, the unit's annual revenues of approximately $400 million suggest that SCE&G-GD's market capitalization would likely fall below the $505 million cut-off if it were a stand-alone entity. This conclusion is based in part on the data in Exhibit No. ___ (RGH-4), which show a median price-to-sales ratio of 0.86 for my sample of gas distribution companies. Applying this ratio to $400 million in revenues would produce a market capitalization of $344 million, which is below the $505 million cut-off.

Q. ARE THERE ANY OTHER REASONS TO USE A SAMPLE OF COMPARABLE COMPANIES?

A. Yes. Because SCE&G-GD is not a stand-alone public entity, it is not possible to observe directly the input values necessary to calculate its cost of capital using the DCF Model and CAPM. For example, SCE&G-GD does not separately pay dividends, which are a necessary input to the DCF Model. This problem of a lack of data is mitigated by using a sample of comparable natural gas distribution firms as a proxy.

[21] Ibbotson Associates, *Stocks, Bonds, Bills and Inflation – Valuation Edition, 2005 Yearbook*, p. 131.

In addition, using a sample of comparable firms is generally preferable when performing a cost of capital calculation, even if the subject firm is publicly traded. This result occurs because errors inevitably creep in to the analysis of the rate of return for a single company due to "noise" in capital markets data and other factors. Use of as large a sample of firms of equivalent risk as possible helps to control this source of error.

Q. HOW DID YOU CHOOSE YOUR "COMPARABLE" COMPANIES?

A. SCE&G-GD "is a natural gas distribution utility operating in 34 counties in the central and southern areas of South Carolina and engaged in the distribution and sale of natural gas to the public for compensation."[22] On a regulatory and as-adjusted basis, approximately 86 percent of SCE&G-GD's gross plant in service is classified as "Distribution."[23] In addition, the gas distribution operations are a subset of SCE&G, comprising approximately 19 percent of that firm's revenue, also on a regulatory basis.[24] Based on this description, I chose as comparable companies a group of publicly traded firms whose primary line of business is natural gas distribution. I defined natural gas distribution as a firm's primary business if more than 50 percent of its revenues were derived from natural gas distribution.

[22] South Carolina Electric & Gas Company, "Application for Increases in Gas Rates and Charges, Application for Adjustments," before the South Carolina Public Service Commission, Docket No. 2005-113-G ("SCE&G-GD Rate Application"), p. 2.
[23] SCE&G-GD Rate Application, Exhibit D-IV, Page 1 of 1.
[24] SCE&G-GD Rate Application, Exhibit D-I, Page 4 of 7.

Q. WHAT ARE THE SPECIFIC STEPS THAT YOU FOLLOWED TO IDENTIFY THE COMPARABLE COMPANIES?

A. I initially compiled a list of companies with the "natural gas distribution" SIC code (4924) from Compustat and CRSP for the most recently available period. I also searched Bloomberg, Value Line, and Zacks for companies they classified under natural gas distribution.[25] From these firms, I excluded non-US companies and companies for which it was not apparent that natural gas distribution accounted for at least 50 percent of revenues. Companies that were subsidiaries of others, or were not traded on the NYSE, NASDAQ or Amex were also excluded. Hence I was left with a list of 22 companies, which I would consider generally comparable in risk to the natural gas distribution unit of SCE&G. These companies, along with some of their financial data, are listed in Exhibit No. ___ (RGH-4). A chart showing the original group of companies, the companies that I excluded and the final sample is provided in Exhibit No. ___ (RGH-12).

Q. IS SCANA INCLUDED IN YOUR SAMPLE OF COMPARABLE COMPANIES?

A. No, it is not. SCANA is a holding company of which SCE&G is one part. SCANA fails under my first two filters: its SIC code is 4911 ("Electric Services") and less than 50 percent of its revenue is from natural gas distribution.

[25] I note that each database has its own nomenclature for "natural gas distribution." For example, Value Line uses "Natural Gas (Distrib.)" while Zacks uses "Utility-Gas-Distr". I also note that I only compiled U.S. companies traded on the NYSE, NASDAQ or Amex from Bloomberg and Zacks.

Q. DO YOU HAVE ANY OTHER COMMENTS REGARDING YOUR METHOD FOR SELECTING COMPARABLE FIRMS?

A. Yes. My methodology was designed to identify companies that are comparable to SCE&G's gas distribution operations by eliminating only companies that were clearly not comparable. This approach, which casts a wide net, minimizes the opportunities for the analysis to be biased, or for errors to creep into the analysis due to noise in the underlying financial markets data.

Q. HOW DID YOU OBTAIN THE NECESSARY INPUTS FOR YOUR DCF ANALYSIS?

A. The inputs to the DCF analysis include the current stock price of each comparable company, its expected dividend, and a forecast of its expected long-term growth. As discussed above, the current stock price is easily obtained from a number of publicly available sources, as is each firm's trailing twelve months of dividends. These inputs appear in Columns 1 and 2 of Exhibit No. ___ (RGH-6).

With regard to the long-term growth forecast, while it is possible to estimate this variable by extrapolating historical data, I prefer to use analysts' forecasts, which is a widely-accepted approach.[26] I obtained analyst earnings growth forecasts from three independent sources: Bloomberg, Zacks, and Value Line. These forecasts are shown in Columns 3, 5, and 7 of Exhibit No. ___ (RGH-6).

[26] See, *e.g.*, Richard A. Brealey and Stewart C. Myers, *Principles of Corporate Finance*, 7th Edition (McGraw-Hill, 2003), pp. 65-6.

Q. COULD YOU EXPAND ON WHY YOU USED THREE SOURCES FOR THE EXPECTED GROWTH INPUT TO THE DCF MODEL?

A. Individual analyst forecasts are subject to potential error and bias. Using a wider range of analyst estimates to obtain a "consensus" forecast reduces the chance that the forecast will be biased or in error.

Q. WHAT DOES YOUR DCF ANALYSIS SHOW?

A. Using the different forecasts of *g*, I calculated the expected dividend one period in the future by multiplying the trailing 12-months dividend for each company by *(1+g)*. I then divided this result by the current stock price to get the dividend yield, then added *g* to calculate the expected cost of equity capital for each firm based on each estimate of *g*. The results of these calculations are shown in Columns 4, 6 and 8 of Exhibit No. ___ (RGH-6).

The results show that the cost of equity as determined by the DCF Model depends on the source of the forecasts used. Bloomberg forecasts result in a cost of equity ranging from 5.4 percent to 10.9 percent (median of 8.7 percent); Zacks forecasts result in a cost of equity ranging from 7.9 percent to 11.2 percent (median of 8.8 percent); and Value Line forecasts result in a cost of equity ranging from 7.4 percent to 37.4 percent (median of 9.9 percent). As shown in Exhibit No. ___ (RGH-3), the average cost of equity of all three approaches is 9.1 percent (before flotation costs).

Q. PLEASE DESCRIBE THE WAY THAT YOU IMPLEMENTED YOUR CAPM ANALYSIS IN THIS CASE.

A. I developed the inputs to the CAPM analysis using publicly available data on interest rates and stock price returns. The CAPM inputs include the risk-free rate (R_f), beta (β), the market risk premium (R_m-R_f) and the small cap risk premium (SP_s). Including these inputs in the CAPM equation produces an estimate of the cost of equity for SCE&G-GD. Each of the inputs is discussed separately below.

Q. WHAT RISK-FREE RATE DID YOU USE?

A. As a proxy for the risk-free rate, I used the current constant maturity yield on the 20-year U.S. Treasury bond.

Q. WHAT IS YOUR BASIS FOR USING THIS RATE?

A. The cost of equity capital is a long-term rate of return as evidenced by the fact that, unlike debt instruments, equity securities have no maturity date. For this reason, equity capital is sometimes referred to as "permanent" capital.

Consistent with the long maturity of equity investments, I have therefore used a relatively long-term Treasury rate. I use the 20-year rate rather than the 30-year rate to be consistent with the equity risk premium that I use.

Q. WHAT EQUITY RISK PREMIUM DID YOU USE?

A. I used an equity risk premium (R_m-R_f) of 7.2 percent. This figure is the average historical equity risk premium for large company stock returns over the income component of long-term government bond returns from 1926 to 2004 according to Ibbotson. The maturity of the long-term bonds used by Ibbotson was 20 years. Thus, my choice of risk premium is consistent with my choice of 20-year Treasury bonds as discussed previously.

Q. WHAT DID YOU DO TO CONFIRM THAT YOUR RISK PREMIUM INPUT IS REASONABLE?

A. I reviewed a number of authoritative sources to refresh my memory. These sources were consistent with my choice of risk premium input. For example, in their renowned finance textbook, Richard Brealey and Stewart Myers write: "Brealey and Myers have no official position on the market risk premium, but we believe that a range of 6 to 8.5 percent is reasonable for the United States."[27] In a survey of 226 academic financial economists, Ivo Welch found that the consensus equity risk premium over 10-year and 30-year bonds was 7 percent as of 2000.[28] Based on data extending from 1900 to 2000, Dimson, *et al.* found that the U.S. premium over long-term bonds was 7.0 percent.[29] These data are consistent with my 7.2 percent input based on historical returns from 1926 to

[27] It is not clear whether this is over short-term or long-term bonds. Richard A. Brealey and Stewart C. Myers, *Principles of Corporate Finance*, 7th Edition (McGraw-Hill, 2003), p. 160.
[28] Ivo Welch, "Views of Financial Economists on the Equity Premium and on Professional Controversies," *Journal of Business*, Vol. 73, 2000, pp. 501-37.
[29] Elroy Dimson, Paul Marsh and Mike Staunton, *Triumph of the Optimists*, (Princeton University Press, 2002), p. 173.

2004.

Other analysts have argued for a lower premium. For example, Eugene Fama and Kenneth French estimated the equity risk premium over Treasury bills from 1951 to 2000 to be between 4.8 and 5.8 percent using a DCF method, versus 8.4 percent based on actual ex-post realized returns.[30] However, I place less weight on this study and similar studies because, among other things, they exclude a substantial amount of reliable data prior to 1951.

Q. WHAT BETA DID YOU USE?

A. As under the DCF analysis, I determine the appropriate beta by examining the betas for the companies in my sample of comparable firms. I determined these betas from two independent sources: Bloomberg (two-year adjusted) and Value Line. As shown in Exhibit No. ___ (RGH-7), the median adjusted beta for the whole sample of comparable companies was 0.83 for Bloomberg and 0.75 for Value Line. For the half of the sample with the lowest market capitalization, the median adjusted beta was 0.83 for Bloomberg and 0.73 for Value Line. I use the latter small cap betas in my analysis of the CAPM cost of equity capital for SCE&G-GD.

[30] Eugene F. Fama and Kenneth R. French, "The Equity Premium," *Journal of Finance*, Vol. 57, 2002, pp. 637-59. Note that 100 basis points were added to the risk premiums in the article to convert them to premia over Treasury Bills. This adjustment is made because Fama and French used six-month commercial paper as a proxy for the risk-free rate.

Q. WHY DID YOU USE BLOOMBERG'S TWO-YEAR BETA?

A. The appropriate beta to use in the CAPM is the beta that is most likely to reflect the market risk of the company in the future. With this logic in mind, recent stock market return data are appropriate for measuring beta because company business risks vary over time as market conditions change and companies alter their mix of business or change their capital structures. By contrast, using data that stretches too far into the past can produce beta estimates that are not valid for projecting into the future.

However, using recent data requires one to use shorter time periods for each observation (for example, weekly instead of monthly data) in order to have a sufficient number of observations to obtain a statistically valid estimate of beta. This can introduce noise and measurement error into the process.

In order to balance these conflicting issues in this case, I have relied on two years of weekly return data to estimate my betas. This period is recent enough to exclude the unusual stock market period from the late 1990s through the early 2000s when the betas of the gas distribution firms in my sample were likely depressed as the correlation between their returns and those for the overall market declined. This pattern can be observed in Exhibit No. ___ (RGH-11A), which shows the historical two-year betas for the companies in my sample before, during and after the unusual stock market period. In addition, the recent period reflects the recently volatile natural gas prices that may have led to increased sensitivity of natural gas distribution firm profits to market forces. The recent volatility of natural gas prices is shown in Exhibit No. ___ (RGH-9).

Two years of weekly stock price return data are sufficient to obtain statistically reliable estimates of beta, especially given my relatively large sample of comparable firms.

Q. WHY DID YOU USE "ADJUSTED" BETAS?

A. "Adjusted" betas are determined by making a mathematical correction to the "raw" betas that result from analyzing the correlation between the returns on individual stocks and those of the market as a whole. This standard correction is important due to the empirical finding that raw betas with an estimated value less than one tend to understate future betas, while raw betas greater than one tend to overstate future betas.[31] Hence raw betas less than one are adjusted upward, while raw betas greater than one are adjusted downward.

Q. DID YOU USE THE ENTIRE SAMPLE OF COMPARABLE COMPANIES TO DETERMINE THE BETA THAT YOU USE IN YOUR CALCULATIONS?

A. No. I have used a subset of the overall sample to obtain my input for beta. Because my CAPM formula includes a small cap premium that was determined using a small cap beta, it is theoretically preferable to use a small cap beta in the CAPM equation. Thus I have used the smaller half of the DCF list of comparable companies (ranked by market capitalization) to determine beta.[32]

---

[31] Marshall E. Blume, "On the Assessment of Risk," *Journal of Finance*, Vol. 26 , 1971, pp. 1-10. See also, Ibbotson Associates, *Stocks, Bonds, Bills and Inflation – Valuation Edition, 2005 Yearbook*, pp. 113-5.

[32] The choice of this approach does not significantly affect the results (see Exhibit No. ___ (RGH -7)).

Q. CAN YOU PLEASE DESCRIBE HOW YOU DETERMINED THE APPROPRIATE SMALL CAP RISK PREMIUM?

A. I followed the methodology described by Ibbotson in their 2005 *Valuation Edition* yearbook to calculate the appropriate small cap risk premium for regulated natural gas distribution companies. Specifically:

1. I constructed annual portfolios of all companies with SIC 4924 (natural gas distribution) from CRSP and Compustat. Ibbotson set a minimum of 10 companies per year in performing a similar analysis. I applied the same minimum in my analysis, which limited my dataset to begin in 1968. Hence I started with 37 portfolios (one for each year from 1968 to 2004).

2. The companies in each annual portfolio were ranked by market capitalization and then divided into two sub-portfolios ("small" and "large"), each with an equal number of companies (if a portfolio consisted of an odd number of companies, the median company (by market capitalization) was removed).

3. The total monthly market-value weighted returns for each "small" sub-portfolio were determined from CRSP. In essence, this provides me with monthly total returns for "small" natural gas distribution companies from 1968 to 2004.

4. The monthly small cap return in excess of the riskless rate was then determined. I did so by subtracting the 30-day U.S. Treasury bill total return from the monthly return calculated in step 3.

5. The monthly return in excess of the riskless rate was regressed against the S&P 500 total return in excess of the 30-day U.S. Treasury bill total return. This provided me with a "raw" beta for small cap natural gas distribution companies.

6. The small cap size premium = actual average small cap return [from step 3 above] – CAPM predicted return where:

CAPM predicted return = $R_f + \beta\ (R_m - R_f)$;

R_f = average income return component of the 20-year government bond (from 1968 to 2004);

β = raw small cap beta as determined in step 5, adjusted upwards for the empirical finding that raw betas based on historical data tend to understate forward-looking betas (see discussion above); and

$(R_m - R_f)$ = the average annual total return of the S&P 500 (from 1968 to 2004) minus the average annual income return component of the 20-year government bond (from 1968 to 2004).

The details of my analysis, which yields a small cap premium for the natural gas industry of 1.91 percent, are presented in Exhibit No.___(RGH-8).

Q. WHAT EVIDENCE DO YOU HAVE THAT YOUR SMALL CAP PREMIUM INPUT IS REASONABLE?

A. First, it is conservative in that it is less than half of the micro cap premium for all micro cap firms published by Ibbotson based on data covering the period from 1926 to 2004. This premium is 4.02 percent versus my calculated premium of 1.91 percent. Second, according to Ibbotson, the "Electric, Gas and Sanitary Services" sector indicated that smaller companies had a positive excess return relative to large companies in the same sector.[33] This result is consistent with a small cap effect for regulated firms.

[33] Ibbotson Associates, *Stocks, Bonds, Bills and Inflation – Valuation Edition, 2005 Yearbook*, p. 153.

Q. WHY IS YOUR SMALL CAP PREMIUM SMALLER THAN THE MICRO CAP PREMIUM ESTIMATED BY IBBOTSON ASSOCIATES?

A. First, the period over which data were available to measure a size premium for natural gas distribution firms, 1968 to 2004, was marked by a lower small capitalization risk premium for all companies. Specifically, the Ibbotson data indicate that the micro cap premium for 1968 to 2004 was 2.9 percent versus 4.0 percent for 1926 to 2004.[34] This difference would lead one to expect the natural gas distribution size premium based on 1968-2004 data to be lower than the full-period premium as well, assuming that the same factors that reduced the overall small cap premium in 1968 to 2004 were equally applicable to small natural gas distribution companies. Thus, if data on natural gas distribution firms had been available for earlier periods, I may have found a higher natural gas distribution size premium under my method.

Second, I use an adjusted beta in the CAPM equation to calculate estimated returns for my small cap sample, while the Ibbotson analysis uses raw betas. In this case, the adjusted beta is greater than the raw beta because the raw beta for natural gas distribution firms is less than one. Hence my use of the adjusted beta in the CAPM equation caused my estimated return to be higher than under the Ibbotson method and my calculated small cap premium to be lower (because the premium is calculated by subtracting the estimated return from the actual average return).

Another potential reason why my small cap premium is lower than the Ibbotson micro cap premium is that Ibbotson had enough data to split its sample

[34] Ibbotson Associates, *Stocks, Bonds, Bills and Inflation – Valuation Edition, 2005 Yearbook*, p. 215-8.

of companies into size deciles. This decomposition allowed them to distinguish between the size premia for "mid cap," "low cap" and "micro cap" firms. Such a split is desirable because, in general, the small cap premium increases as the market capitalization decreases (see Exhibit No. ___ (RGH-10)). In contrast, I divided my annual samples into two halves (large and small) due to limitations regarding the number of natural gas distribution companies. As a result, my size risk premium measures an overall average small capitalization premium rather than the (likely higher) micro cap premium that would be applicable to SCE&G-GD.

Q. WHY HAVE YOU NOT INCREASED YOUR SMALL CAPITALIZATION PREMIUM TO REFLECT THE FACT THAT THE 1968 TO 2004 PERIOD WAS A LOW-RETURN PERIOD FOR SMALL CAP STOCKS?

A. As noted above, such an adjustment may be appropriate if the factors that caused the small capitalization premium for all companies to be lower during the 1968 to 2004 period would have affected small natural gas distribution firms in exactly the same manner. Given the available data, it is very difficult to determine with reasonable certainty whether this was the case.

In addition, while I am comfortable that the number of companies upon which I base my natural gas distribution small cap risk premium is sufficient, it is not a large sample by financial market research standards. Thus from a statistical point of view, it is more difficult to assume that the companies in my sample were affected by the same factors as all small companies during this period.

To conclude, I have declined to adjust my small cap premium upward based on the observation that the 1968 to 2004 period was a "low" period for small capitalization returns.

Q. WHAT DOES YOUR CAPM ANALYSIS SHOW?

A. My CAPM analysis shows that the cost of equity results depend on the source of beta (that is, Value Line or Bloomberg), but that the results are reasonably comparable. Bloomberg betas result in a median cost of equity of 12.4 percent; Value Line betas result in a median cost of equity of 11.7 percent. Hence the average of the two is 12.0 percent. The results of my analysis are shown in Exhibit No. ___ (RGH-3) and Exhibit No. ___ (RGH-3A).

Q. PLEASE SUMMARIZE THE RESULTS OF YOUR ANALYSIS.

A. My analysis provides the following cost of equity results (before flotation costs) based on the DCF and CAPM analyses that I have employed:[35]

	Minimum	Maximum	Mean
DCF Model	8.7%	9.9%	9.1%
CAPM	11.7%	12.4%	12.0%

[35] These results represent the median values of each particular analysis. See Exhibit No.___ (RGH-3) for details.

Q. PLEASE EXPLAIN WHY YOU BELIEVE THE INPUTS AND RESULTS FROM YOUR DCF AND CAPM METHODS ARE RELIABLE CONSIDERING THE DIFFERENCE IN RESULTS BETWEEN THE TWO APPROACHES.

A. As discussed above, both methods have their strengths and weaknesses. While the DCF Model directly measures investors' expected returns on dividend-paying stocks, it uses potentially unreliable forecasts of long-term growth rates and does not explicitly address risk, which necessarily impacts investors' expected returns. In particular, the DCF Model does not include a framework for explicitly recognizing the clearly higher risk of micro cap operations, such as SCE&G-GD. By contrast, the CAPM explicitly addresses the clear ability of investors to diversify at relatively low cost, as well as the issue of risk, including in the case of SCE&G-GD, the well-documented greater risk of small versus large capitalization firms. However, the CAPM may not capture all potential risk factors and requires an element of judgment, as does the DCF Model.

Nevertheless, both models have withstood the test of time and are grounded firmly in sound principles of finance theory. Accordingly, I have used both models to inform my judgment in this case.

Q. WHEN ASSESSING THE RELATIVE MARKET RISK OF SCE&G-GD, DID YOU CONSIDER THE FACT THAT SCE&G'S GAS DISTRIBUTION RATES ARE SUBJECT TO A "WEATHER NORMALIZATION ADJUSTMENT" (WNA)?

A. Yes.

Q. WHAT IS THE WNA?

A. I understand that the WNA acts to stabilize SCE&G-GD's income during the winter heating months (November through April) by applying an adjustment to compensate for deviations from normal weather. The WNA can act to increase or reduce rates paid by customers, depending on weather conditions. The adjustment applies only to the portion of the gas rate which covers costs other than the cost of the natural gas. The Commission adopted the WNA for SCE&G in November 1991.

Q. HOW DID YOU TAKE THE WNA INTO CONSIDERATION WHEN ASSESSING THE RELATIVE RISK OF SCE&G-GD?

A. In two ways. First, I considered whether a WNA logically would decrease the risk of a natural gas distribution firm from a cost of capital perspective and decided that it would not. Therefore I did not exclude any firms from my sample because they did not operate under a WNA, nor did I make any other adjustment in my analysis. As I discussed earlier, a firm's cost of capital depends on the degree to which the value of its assets (which depends on its revenues and profits)

fluctuates with the value of all assets in the economy. The greater this fluctuation, the greater the firm's "market risk" and the greater its cost of capital. The operative question, then, is whether a weather normalization adjustment could be expected to decrease the degree to which the market value of a gas distribution firm's assets and the market value of all assets in the economy fluctuate together. This outcome in turn depends on the degree to which the performance of the economy as a whole could be expected to fluctuate significantly due to changes in the weather. There is no reason to believe that the performance of the economy fluctuates significantly with the weather. Therefore a weather normalization adjustment should not significantly reduce the market risk of a natural gas distribution firm in a way that would reduce its cost of capital.

Nevertheless, I also investigated whether the companies in my sample are subject to similar adjustments because, if this were the case, then no adjustment to my sample (or other adjustment to my analysis) would be necessary regardless of the soundness of the above logic. My research indicates that several companies in my sample have regulatory provisions similar to the WNA. Thus, by definition, these companies' market risk is comparable to that of SCE&G-GD along this dimension.

For the above reasons, I have made no adjustment to my sample of comparable companies or my cost of capital calculations to reflect the fact that SCE&G-GD is subject to a WNA.

Q. WHEN ASSESSING THE RELATIVE MARKET RISK OF SCE&G-GD, DID YOU CONSIDER THE FACT THAT SCE&G-GD'S GAS DISTRIBUTION RATES ARE SUBJECT TO A "NATURAL GAS RATE STABILIZATION ACT" (RSA)?

A. Yes.

Q. WHAT IS THE RSA?

A. The RSA provides an efficient rate setting mechanism, within a narrow set of parameters during stable economic conditions, for public utilities that supply natural gas distribution service in South Carolina. The mechanism is designed to ensure that the utilities' returns on equity stay within a one percent band of their allowed returns on equity. In so doing, the RSA aims to make it easier for utilities to adjust rates without the expensive and time-consuming effort of a comprehensive rate proceeding. These more frequent, but smaller rate changes, help to avoid situations where a utility may delay or forego investment because it is reluctant to file for a rate proceeding. Similarly, the RSA avoids customers having to face large one-time rate increases. Hence, like the WNA, the RSA provides for more stable gas rates paid by customers, and a more stable return earned by the Company. In South Carolina, the RSA just recently became effective (February 2005).

Q. HOW DID YOU TAKE THE RSA INTO CONSIDERATION WHEN ASSESSING THE RELATIVE MARKET RISK OF SCE&G-GD?

A. To begin, I note that it is not clear how effective the RSA will be in stabilizing rates and returns because future economic fluctuations are unknown. Nevertheless, my best forecast based on my understanding of the way the RSA is expected to operate is that it is more likely to reduce rather than increase SCE&G-GD's market risk relative to the market risk of my comparable firms, assuming those firms operate in jurisdictions without such regulations. I say this because I understand that the RSA would require annual rate adjustments either up or down in the event of a profit shortfall or surplus. This relief would have the effect of reducing SCE&G-GD's relative market risk, all else equal. However, I have not explicitly adjusted my analysis to recognize these potential market risk reducing properties of the RSA for three reasons.

First, it is difficult to quantify reliably an appropriate reduction in the cost of capital because it is unclear how effective the RSA will be in stabilizing rates and returns because future economic fluctuations are unknown. In any event, the reduction in relative market risk from the RSA, if any, is unlikely to be significant because the Act is unlikely to provide protection to SCE&G-GD if its profits were to fall significantly due to adverse economic conditions. This is due to the fact that the Act does not preclude interested parties, including SCE&G, its customers, or regulators from petitioning for rate adjustments either up or down due to a change in economic conditions.[36] For example, if there were a recession and SCE&G-GD's profits and return on equity fell significantly, the company could

[36] Natural Gas Rate Stabilization Act, Sections 58-5-455 and 58-5-460.

file for a rate increase under the RSA. However, the Company would be unlikely to receive the benefit of an increase because interest rates and costs of capital likely would also be lower in a recession and could justify a lower return on equity in a general rate case. Thus, the Act can not be expected to provide SCE&G-GD with full protection against exactly the type of risk that is important for the cost of capital – that is, the systematic risk of profit fluctuations due to broad changes in the economy or asset markets.

Second, the RSA can be expected to shorten "regulatory lag," but not eliminate it. Thus, there will still be the risk of reduced profits under the RSA while SCE&G-GD waits for requested new rates to go into effect. The firms in my sample of comparable companies also face such regulatory lags.

Third, there are certain other factors that tend to increase SCE&G-GD's market risk relative to the comparable firms (such as its relative lack of geographic diversification), for which I have not made an explicit adjustment in my calculations. Attempting to adjust for all such factors by explicitly adjusting my sample of comparable firms or through other means would risk introducing error and bias into my analysis through a reduced sample size and the inevitable subjective judgments that would be required.

Q. DO THE COST OF EQUITY RESULTS SET FORTH ABOVE INCLUDE AN ADJUSTMENT FOR FLOTATION COSTS?

A. No.

Q. DO YOU BELIEVE THAT FLOTATION COSTS SHOULD BE INCLUDED IN THE COST OF EQUITY THAT IS USED FOR RATE-SETTING PURPOSES?

A. Yes. I understand that the Company does not recover flotation costs through inclusion in its ratebase. I therefore believe that these costs should be included in the cost of equity figures that will be applied to the rate base to determine rates.

While I understand that there is no immediate plan for the Company to issue new equity or debt securities, there likely will be a need to do so at some point in the future. Costs involved in raising equity and debt capital (for example, underwriting costs, market price discounts to raise new capital, and associated fees) can only be recovered under a regulated rate regime if the Commission allows the Company to earn a return that reflects these costs.

Q. PLEASE DESCRIBE HOW YOU WILL INCLUDE FLOTATION COSTS.

A. A 1996 study published in the *Journal of Financial Research* examined the costs of raising capital for U.S. corporations.[37] The researchers found that the average total direct cost for utility seasoned equity offerings (which would be what SCE&G would offer) ranged from 7.68 to 2.31 percent, depending on the size of the equity offering (the larger the offering, the lower the cost). The average total direct cost of these offerings was 4.92 percent, which is what I will

[37] Inmoo Lee, Scott Lochhead, Jay Ritter and Quanshui Zhao, "The Costs of Raising Capital," *Journal of Financial Research*, Vol. 19, 1996, pp. 59-74.

use in my adjustment.[38]

I incorporate the 4.92 percent by dividing the cost of equity estimates derived using the DCF and CAPM approaches by 95.08 percent.[39]

The logic behind this calculation is straightforward. Suppose that the cost of equity for company ABC is 10 percent, and that it intends to issue $1 million in new equity (that is, a seasoned equity offering). Correspondingly, this $1 million would be expected to earn 10 percent. But due to flotation costs, ABC raises only $950,800.[40] In order to meet the required return of investors (who expect a 10 percent return), this $950,800 would need to raise $100,000 per year.[41] The corresponding rate on the $950,800 is thus 10.52 percent.[42]

Q. BASED ON ALL OF YOUR ANALYSIS, WHAT IS THE APPROPRIATE COST OF EQUITY FOR THE NATURAL GAS DISTRIBUTION UNIT OF SCE&G?

A. Including flotation costs, it is my opinion that the cost of equity for the natural gas distribution unit of SCE&G lies somewhere within the broad range of 9.61 to 12.66 percent (Exhibit No. ___ (RGH-2)). Within this broad range, I would pick the midpoint, or 11.14 percent, as an appropriate point estimate of

[38] I understand that SCANA recently issued a seasoned equity offering of over $100 million, at a cost of approximately 4.25 percent. As Lee, *et al.* show, issuance costs as a percentage of the offering increase as the size of the offering decreases. Thus, considering the relatively small size of SCE&G-GD, an offering issued to fund its operations would be considerably smaller than the SCANA offering. Hence using 4.92 percent is more appropriate in the present case and may even be conservative.
[39] That is, 100 – 4.92 = 95.08.
[40] $1 million multiplied by 95.08 percent.
[41] $1 million multiplied by 10 percent.
[42] $100,000 divided by $950,800.

SCE&G-GD's cost of equity capital under current market and economic conditions.

Q. PLEASE ELABORATE UPON YOUR CHOICE OF THE MIDPOINT OF THE RANGE AS A POINT ESTIMATE FOR SCE&G-GD'S COST OF CAPITAL.

A. In my judgment, choosing the midpoint of the range is conservative in that it produces an estimate of the cost of capital in this particular case that is more likely to be too low than too high. That is, as discussed above, SCE&G-GD's cost of capital is properly evaluated under finance theory as if it were a stand-alone, "micro cap" entity. But the DCF Model does not provide an explicit framework to adequately adjust for this well-documented size-related risk factor. Thus, in this case the DCF Model is more likely to understate SCE&G-GD's cost of capital than the CAPM is to overstate it. As a result, giving the two models equal weight in calculating a point estimate of SCE&G-GD's cost of capital is conservative in that the point estimate is more likely to be too low than too high.

Q. WHAT IS SCE&G'S CAPITAL STRUCTURE?

A. SCE&G's capital structure as of December 31, 2004, was 50.75 percent common equity, 46.55 percent long term debt, and 2.71 percent preferred stock.[43] These latter two components can be considered together (for a total of 49.25 percent) as "fixed rate" income securities because the Company is obligated to

[43] SCE&G-GD Rate Application, Exhibit D-VII, Page 1 of 1.

pay holders of both these types of securities predetermined amounts at predetermined times.

Q. IS THIS A REASONABLE CAPITAL STRUCTURE FOR SCE&G-GD?

A. In my opinion, this capital structure is reasonable for SCE&G's natural gas distribution operations. For example, on a book value basis, the complete set of comparable companies that I have used in my cost of equity analysis (as described earlier), have a median capital structure of approximately 50 percent long-term debt, and 50 percent common stock.[44] As I discussed earlier, as of December 31, 2004, SCE&G's capital structure was 49.25 percent long-term debt and 50.75 percent common equity, on a book-value basis. Hence SCE&G's capital structure is similar to that of its comparables, and is therefore reasonable.

Q. WHAT IS THE COMPANY'S COST OF LONG-TERM DEBT?

A. As of December 31, 2004, SCE&G's weighted average adjusted embedded cost of long-term debt is 6.57 percent.[45]

Q. BASED ON THE COMPANY'S CAPITAL STRUCTURE, ITS COST OF LONG-TERM DEBT, AND YOUR DETERMINATION OF A FAIR AND REASONABLE COST OF EQUITY CAPITAL, WHAT IS A REASONABLE OVERALL RETURN FOR SCE&G-GD?

A. Based on the company's capital structure, its cost of long-term debt, and

[44] See Exhibit No.___(RGH-5).
[45] SCE&G-GD Rate Application, Exhibit D-VII, Page 1 of 1.

my determination of a fair and reasonable cost of equity, a reasonable rate of return (including flotation costs) for the Company is as follows.

Overall Cost of Capital (including flotation costs)

	Ratio (percent)	Cost (percent)	Overall Cost (percent)
Long-Term Debt[46]	49.25	6.57	3.24
Common Equity	50.75	11.14	5.65
Total	100.00		8.89

Q. THE COMPANY HAS REQUESTED AN 11.75 PERCENT RETURN ON EQUITY. PLEASE COMMENT ON THE APPROPRIATENESS OF THAT REQUEST.

A. As discussed earlier, estimating the cost of equity is not an exact science. One must consider different approaches as well as the assumptions and strengths and limitations of each. This is what I have done in this case. Based on my analysis, an 11.75 percent return is clearly within my range of reasonableness given the fact that, unlike the CAPM, the DCF Model does not allow for an explicit small capitalization risk adjustment (see discussion above). Indeed, my reliance on the midpoint of the results of the two models is a conservative approach in that, on balance, the appropriate rate of return on equity capital for SCE&G-GD is more likely to be higher than my midpoint estimate than it is to be lower.

[46] Includes Preferred Shares.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

EXHIBIT NO.___(RGH-1)

ROBERT GLENN HUBBARD

Curriculum Vitae

15 Claremont Avenue
Apartment 63
New York, New York 10027
Phone: (212) 932-1347
Fax: (212) 864-6184
e-mail: rghubbard@aol.com

Graduate School of Business
Columbia University
101 Uris Hall; 3022 Broadway
New York, New York 10027
Phone: (212) 854-2888
Fax: (212) 932-0545
e-mail: rgh1@columbia.edu
http://www.gsb.columbia.edu/faculty/ghubbard

PERSONAL DATA

Born:	September 4, 1958, in Orlando, Florida.
Marital Status:	Married to Constance Pond Hubbard; Two children, Robert Andrew Pond Hubbard and William Charles Pond Hubbard

FIELDS OF SPECIALIZATION

Public Economics, Corporate Finance and Financial Institutions, Macroeconomics, Industrial Organization, Natural Resource Economics, Public Policy.

EDUCATION

Ph.D., Economics, Harvard University, May 1983.
Dissertation: *Three Essays on Government Debt and Asset Markets*, supervised by Benjamin M. Friedman, Jerry A. Hausman, and Martin S. Feldstein.

A.M., Economics, Harvard University, May 1981.

B.A., B.S., Economics, University of Central Florida, June 1979, *summa cum laude*.

HONORS AND AWARDS

Exceptional Service Award, The White House, 2002.

Michelle Akers Award for Distinguished Service, University of Central Florida, 2001.

Alumni Hall of Fame, University of Central Florida, 2000.

Best Paper Award for Corporate Finance, Western Finance Association, 1998.

Exceptional Service Award, U.S. Department of the Treasury, 1992.

Distinguished Alumnus Award, University of Central Florida, 1991.

John M. Olin Fellowship, National Bureau of Economic Research, 1987-1988.

Teaching Commendations, Graduate School of Business, Columbia University.

Northwestern University Associated Student Government Teaching Awards, announced in 1985, 1986, and 1987.

Graduate Distinctions: National Science Foundation Fellowship, Alfred P. Sloan Foundation Fellowship.

Undergraduate Distinctions: National Merit Scholarship, National Society of Professional Engineers Award, Florida Society of Professional Engineers Award, National Council of Teachers of English Award, Omicron Delta Kappa, Financial Management Association Honor Society.

POSITIONS HELD

2004-present	Dean, Graduate School of Business, Columbia University
1994-present	Russell L. Carson Professor of Economics and Finance, Graduate School of Business, Columbia University
1997-present	Professor of Economics, Faculty of Arts and Sciences, Columbia University
1999-present	Co-Director, Columbia Business School Entrepreneurship Program
2004-present	Member, Panel of Economic Advisors, Congressional Budget-Office
2004-present	Viewpoint Columnist, *Business Week*
2001-2003	Chairman, President's Council of Economic Advisers
2001-2003	Chairman, Economic Policy Committee, Organization for Economic Cooperation and Development
2001-2003	Member, White House National Economic Council and National Security Council
2001-2003	Member, President's Council on Science and Technology
1997-1998	Visiting Professor of Business Administration, Harvard Business School
1995-present	Visiting Scholar and Director of Tax Policy Program, American Enterprise Institute
1994-1997	Senior Vice Dean, Graduate School of Business, Columbia University
1994	MCI Fellow, American Council for Capital Formation
1994	John M. Olin Visiting Professor, Center for the Study of Economy and the State, University of Chicago
1991-1993	Deputy Assistant Secretary (Tax Analysis), U.S. Department of the Treasury
1988-present	Professor of Economics and Finance, Graduate School of Business, Columbia University
1987-1988	John M. Olin Fellow in residence at the National Bureau of Economic Research
1983-1988	Assistant Professor of Economics, Northwestern University, with half-time research appointment in the Center for Urban Affairs and Policy Research
1985	Visiting Scholar, Center for Business and Government, John F. Kennedy School of Government, Harvard University
1981-1983	Teaching Fellow (Department of Economics) and Resident Tutor in Economics (Dunster House), Harvard University

DIRECTORSHIPS

2004-	ADP, Inc.; Dex Media; KKR Financial Corporation; BlackRock Closed-End Funds; Duke Realty Corporation
2003-	ITU Ventures; Ripplewood Holdings
2000-2001	Angel Society, LLC; Information Technology University, LLC

POSTS IN CHARITABLE ORGANIZATIONS

2004-present	Trustee, Economic Club of New York
2004-present	Trustee, Fifth Avenue Presbyterian Church, New York
2004-present	Member, Advisory Board, National Center on Addiction and Substance Abuse
2003-present	Member, Manhattan District Council Board, Boy Scouts of America

PROFESSIONAL ACTIVITIES

1987-present	Research Associate, National Bureau of Economic Research (Monetary Economics, Corporate Finance, Public Economics, Economic Fluctuations, Industrial Organization)
2003-present	Chairman, Panel of Academic Advisors, International Tax Policy Forum
2003-present	Member, Panel of Academic Advisors, Tax Foundation
2003-present	Member, Panel of Academic Advisors, American Council for Capital Formation
2003-present	Member, Committee of Visitors, National Science Foundation
2000	Panelist, Graduate Fellowship Selection Committee, National Science Foundation
1999-2001	Director, Project on Nonprofit Organizations, National Bureau of Economic Research
1997-2001	Member, COSSA-Liaison Committee, American Economic Association
1995-2001, 2003	Visiting Scholar, American Enterprise Institute
1993-2001	Panel of Economic Advisors, Federal Reserve Bank of New York
1993-2001	Board of Advisors, Institutional Investor Project, School of Law, Columbia University
1995-1999	Member, Board of Academic Consultants, American Law Institute
1997	Member, Grants Panel for Integrative Graduate Education and Research Training Program, National Science Foundation
1994-1996	Member, Economics Grants Panel, National Science Foundation
1993-1996	Member, Federal Taxation and Finance Committee, National Tax Association
1990-1995	Co-organized research program on International Aspects of Taxation at the National Bureau of Economic Research, Cambridge, Massachusetts

1995	Member, Program Committee, American Economic Association Meeting
1983-1987	Faculty Research Fellow, National Bureau of Economic Research
1983-1986	Adjunct Faculty Research Fellow, Energy and Environmental Policy Center, John F. Kennedy School of Government, Harvard University, Cambridge, Massachusetts
1986, 1988, 1994	Member of the Brookings Panel on Economic Activity
1985, 1987	Special guest of the Brookings Panel on Economic Activity
1990-1991	Organized research program on Environmental Economics and Public Policy at the National Bureau of Economic Research, Cambridge, Massachusetts
1988-1990	Co-organized research program on Dynamic Models of Firms and Industries at the National Bureau of Economic Research, Cambridge, Massachusetts
1985-1989	Organized research program and workshops on contracting in financial markets at the Summer Institute, National Bureau of Economic Research, Cambridge, Massachusetts
1988	Organized Economic Fluctuations program on Industrial Economics and Macroeconomics, National Bureau of Economic Research, Stanford, California
1986-1988	Organized research program and workshop on links between macroeconomics and industrial organization at the Summer Institute, National Bureau of Economic Research, Cambridge, Massachusetts
1991	Member, Program Committee, Econometric Society Winter Meetings
1982-1983	Member, Energy Modeling Forum VII Study Group, Stanford University, Stanford, California
1981-present	Consultant on research projects with private corporations and government and international agencies, including the Internal Revenue Service, Social Security Administration, U.S. Department of Energy, U.S. Department of State, U.S. Department of Treasury, and U.S. International Trade Commission; National Science Foundation; The World Bank; Board of Governors of the Federal Reserve System; Federal Reserve Bank of New York; Congressional Budget Office
Member:	American Economic Association, American Finance Association, Association for Public Policy and Management, Econometric Society, International Association of Energy Economists, National Tax Association, the Royal Economic Society, and the Institute for Management Science

Referee: *American Economic Review; Canadian Journal of Economics; Columbia Journal of World Business; Econometrica; Economic Journal; Energy Economics; Energy Journal; International Finance; International Tax and Public Finance; Journal of Business; Journal of Business and Economic Statistics; Journal of Economic History; Journal of Economic Literature; Journal of Finance; Journal of Financial Economics; Journal of Financial Intermediation; Journal of Financial and Quantitative Analysis, Journal of Financial Services Research; Journal of Industrial Economics; Journal of International Money and Finance; Journal of Law and Economics; Journal of Macroeconomics; Journal of Money, Credit, and Banking; Journal of Monetary Economics; Journal of Political Economy; Journal of Public Economics; Journal of Regulatory Economics; Journal of Small Business Finance; Management Science; National Tax Journal; Quarterly Journal of Economics; Quarterly Review of Economics and Finance; RAND Journal of Economics; Review of Economic Dynamics; Review of Economic Studies; Review of Economics and Statistics; Review of Financial Economics; Scandinavian Journal of Economics; Southern Economic Journal*; National Science Foundation; C.V. Starr Center for Applied Economics (New York University); Addison-Wesley Publishing Company; Ballinger Press; Cambridge University Press; Harvard Business School Press; MIT Press; W.W. Norton; Oxford University Press

Associate Editor: *Journal of Macroeconomics; Journal of Small Business Finance; International Finance*

Former Associate Editor: *Journal of Industrial Economics, Federal Reserve Bank of New York Economic Policy Review; International Tax and Public Finance; National Tax Journal*

PUBLICATIONS AND PAPERS

Edited Volumes

Effects of Taxation on Multinational Corporations (with M. Feldstein and J.R. Hines), Chicago: University of Chicago Press, 1995.

Taxing Multinational Corporations (with M. Feldstein and J. R. Hines), Chicago: University of Chicago Press, 1995.

Studies in International Taxation (with A. Giovannini and J. B. Slemrod), Chicago: University of Chicago Press, 1993.

Financial Markets and Financial Crises, Chicago: University of Chicago Press, 1991.

Asymmetric Information, Corporate Finance, and Investment, Chicago: University of Chicago Press, 1990.

Textbooks

Principles of Economics (with A.P. O'Brien), Prentice Hall, forthcoming.

Money, the Financial System, and the Economy, Reading: Addison-Wesley Publishing Company, 1st ed., 1994; 2nd ed., 1997; 3rd ed., 2000; 4th ed., 2002; 5th ed., 2004.

Publications

Articles

"Entrepreneurship and Household Saving." (with W.M. Gentry), *Advances in Economic Analysis and Policy*, forthcoming.

"The Effects of Progressive Income Taxation on Job Turnover." (with W.G. Gentry), *Journal of Public Economics*, forthcoming.

"Precautionary Savings and the Governance of Nonprofit Organizations" (with R. Fisman), *Journal of Public Economics,* forthcoming.

"Government Debt and Interest Rates" (with E. Engen), in M. Gertler and K. Rogoff, *NBER Macroeconomics Annual*, forthcoming.

"The Effects of Progressive Taxation on Job Turnover" (with W.M. Gentry), *Journal of Public Economics,* forthcoming.

"Taxing Multinationals" (with M. Devereux), *International Taxation and Public Finance* 10(2003):469-487.

"The Effect of the Tax Reform Act of 1986 on the Location of Assets in Financial Services Firms" (with R. Altshuler), *Journal of Public Economics*, 87 (January 2003):109-127.

"The Role of Nonprofit Endowments" (with R. Fisman), in E. Glaeser, ed., *The Governance of Not-For-Profit Organizations*, Chicago: University of Chicago Press, 2003.

"Are There Bank Effects in Borrowers' Costs of Funds?: Evidence from a Matched Sample of Borrowers and Banks" (with K.N. Kuttner and D.N. Palia), *Journal of Business* 75 (October 2002): 559-581.

"Are Dividend Taxes and Imputation Credits Capitalized in Share Values?" (with T.S. Harris and D. Kemsley), *Journal of Public Economics* 79 (March 2001): 569-596.

"Tax Policy and Entrepreneurial Entry" (with W.M. Gentry), *American Economic Review* 90 (May 2000).: 283-287.

"Understanding the Determinants of Managerial Ownership and the Link Between Ownership and Performance" (with C.P. Himmelberg and D. Palia), *Journal of Financial Economics* 53 (1999): 353-384.

"A Reexamination of the Conglomerate Merger Wave in the 1960s" (with D. Palia), *Journal of Finance* 54 (June 1999): 1131-1152.

"Inflation and the User Cost of Capital: Does Inflation Still Matter?" (with D. Cohen and K.A. Hassett), in M. Feldstein, ed., *The Costs and Benefits of Achieving Price Stability*, Chicago: University of Chicago Press, 1999.

"Are Investment Incentives Blunted by Changes in Prices of Capital Goods?: International Evidence" (with K.A. Hassett), *International Finance* 1 (October 1998): 103-125.

"Capital-Market Imperfections and Investment," *Journal of Economic Literature* 36 (March 1998): 193-225.

"Fundamental Tax Reform and Corporate Financial Policy" (with W.M. Gentry), in J.M. Poterba, ed., *Tax Policy and the Economy*, volume 12, Cambridge: MIT Press, 1998.

"Distributional Implications of Introducing a Broad-Based Consumption Tax" (with W.M. Gentry), in J.M. Poterba, ed., *Tax Policy and the Economy*, volume 11, Cambridge: MIT Press, 1997.

"How Different Are Income and Consumption Taxes?," *American Economic Review* 87 (May 1997): 138-142.

"Tax Policy and Investment," (with K.A. Hassett), in A.J. Auerbach, ed., *Fiscal Policy: Lessons from Economic Research*, Cambridge: MIT Press, 1997.

"Assessing the Effectiveness of Saving Incentives" (with J. Skinner), *Journal of Economic Perspectives* 10 (Fall 1996): 73-90.

"The Political Economy of Branching Restrictions and Deposit Insurance: A Model of Monopolistic Competition Among Small and Large Banks" (with N. Economides and D. Palia), *Journal of Law and Economics* 39 (October 1996): 667-704.

"Tax Reforms and Investment: A Cross-Country Comparison" (with J.G. Cummins and K.A. Hassett), *Journal of Public Economics* 62 (1996): 237-273.

"Benefits of Control, Managerial Ownership, and the Stock Returns of Acquiring Firms" (with D. Palia), *RAND Journal of Economics* 26 (Winter 1995): 782-792.

"Executive Pay and Performance: Evidence from the U.S. Banking Industry" (with D. Palia), *Journal of Financial Economics* 39 (1995): 105-130.

"Tax Policy, Internal Finance, and Investment: Evidence from the Undistributed Profits Tax of 1936-1937" (with C. Calomiris), *Journal of Business* 68 (October 1995): 443-482.

"A Reconsideration of Investment Behavior Using Tax Reforms as Natural Experiments" (with J.G. Cummins and K.A. Hassett), *Brookings Papers on Economic Activity* (1994:2): 1-59.

"Precautionary Saving and Social Insurance" (with J. Skinner and S. Zeldes), *Journal of Political Economy* 105 (April 1995): 360-399.

"Expanding the Life-Cycle Model: Precautionary Saving and Public Policy" (with J. Skinner and S. Zeldes), *American Economic Review* 84 (May 1994): 174-179.

"The Tax Sensitivity of Foreign Direct Investment: Evidence from Firm-Level Panel Data" (with J. Cummins), in M. Feldstein, J.R. Hines, and R.G. Hubbard, eds., *Effects of Taxation on Multinational Corporations*, Chicago: University of Chicago Press, 1995.

"International Adjustment Under the Classical Gold Standard: Evidence for the U.S. and Britain, 1879-1914" (with C. Calomiris), in T. Bauoumi, B. Eichengreen, and M. Taylor, eds., *Modern Perspectives on the Gold Standard*, Cambridge: Cambridge University Press, 1995.

"Internal Finance and Firm-Level Investment" (with A. Kashyap and T. Whited), *Journal of Money, Credit, and Banking* 27 (August 1995): 683-701.

"Do Tax Reforms Affect Investment?" (with J.G. Cummins and K.A. Hassett), in J.M. Poterba, ed., *Tax Policy and the Economy*, vol. 9, Cambridge: MIT Press, 1995.

"The Importance of Precautionary Motives for Explaining Individual and Aggregate Saving" (with J. Skinner and S. Zeldes), *Carnegie-Rochester Conference Series on Public Policy* 40 (June 1994): 59-126.

"Corporate Financial Policy, Taxation, and Macroeconomic Risk" (with M. Gertler), *RAND Journal of Economics* 24 (Summer 1993): 286-303.

"Internal Net Worth and the Investment Process: An Application to U.S. Agriculture" (with A. Kashyap), *Journal of Political Economy* 100 (June 1992): 506-534.

"Long-Term Contracting and Multiple-Price Systems" (with R. Weiner), *Journal of Business* 65 (April 1992): 177-198.

"Efficient Contracting and Market Power: Evidence from the U.S. Natural Gas Industry" (with R. Weiner), *Journal of Law and Economics* 34 (April 1991): 25-67.

"Interest Rate Differentials, Credit Constraints, and Investment Fluctuations" (with M. Gertler and A. Kashyap), in R.G. Hubbard, ed., *Financial Markets and Financial Crises*, Chicago: University of Chicago Press, 1991.

"Taxation, Corporate Capital Structure, and Financial Distress" (with M. Gertler), in L.H. Summers, ed., *Tax Policy and the Economy*, volume 4, Cambridge: MIT Press, 1990.

"Firm Heterogeneity, Internal Finance, and Credit Rationing" (with C. Calomiris), *Economic Journal* 100 (March 1990): 90-104.

"Coming Home to America: Dividend Repatriations in U.S. Multinationals" (with J. Hines), in A. Razin and J.B. Slemrod, eds., *Taxation in the Global Economy*, Chicago: University of Chicago Press, 1990.

"Price Flexibility, Credit Availability, and Economic Fluctuations: Evidence from the U.S., 1894-1909" (with C. Calomiris), *Quarterly Journal of Economics* 104 (August 1989): 429-452.

"Financial Factors in Business Fluctuations" (with M. Gertler), in Federal Reserve Bank of Kansas City, *Financial Market Volatility--Causes, Consequences, and Policy Responses*, 1989.

"Contracting and Price Adjustment in Commodity Markets: Evidence from Copper and Oil" (with R. Weiner), *Review of Economics and Statistics* 71 (February 1989): 80-89.

"Financing Constraints and Corporate Investment" (with S. Fazzari and B.C. Petersen), *Brookings Papers on Economic Activity*, 1988:1: 141-195; Reprinted in Z.J. Acs, ed., *Small Firms and Economic Growth*, Cheltenham, U.K.: Edward Elgar Publishing Ltd., 1995.

"Investment, Financing Decisions, and Tax Policy" (with S. Fazzari and B.C. Petersen), *American Economic Review* 78 (May 1988): 200-205.

"Market Structure and Cyclical Fluctuations in U.S. Manufacturing" (with I. Domowitz and B.C. Petersen), *Review of Economics and Statistics* 70 (February 1988): 55-66.

"Capital Market Imperfections and Tax Policy Analysis in the Life-Cycle Model" (with K. Judd), Annales d' *Economie et de Statistique* 9 (January-March 1988): 111-139.

"Social Security and Individual Welfare: Precautionary Saving, Borrowing Constraints, and the Payroll Tax" (with K. Judd), *American Economic Review* 77 (September 1987): 630-646.

"Oligopoly Supergames: Some Empirical Evidence on Prices and Margins" (with I. Domowitz and B.C. Petersen), *Journal of Industrial Economics* 36 (June 1987): 379-398.

"Uncertain Lifetimes, Pensions, and Individual Saving," in Zvi Bodie, John B. Shoven, and David A. Wise (eds.), *Issues in Pension Economics,* Chicago: University of Chicago Press, 1987, pp. 175-205.
"The Farm Debt Crisis and Public Policy" (with C. Calomiris and J. Stock), *Brookings Papers on Economic Activity*, 1986:2: 441-479.

"Liquidity Constraints, Fiscal Policy, and Consumption" (with K. Judd), *Brookings Papers on Economic Activity*, 1986:1: 1-50.

"The Intertemporal Stability of the Concentration-Margins Relationship" (with I. Domowitz and B.C. Petersen), *Journal of Industrial Economics* 35 (September 1986): 13-34.

"Pension Wealth and Individual Saving: Some New Evidence," *Journal of Money, Credit, and Banking* 18 (May 1986): 167-178.

"Supply Shocks and Price Adjustment in the World Oil Market," *Quarterly Journal of Economics* 101 (February 1986): 85-102.

"Regulation and Long-Term Contracts in U.S. Natural Gas Markets" (with R. Weiner), *Journal of Industrial Economics* 35 (September 1986): 51-71.

"Business Cycles and the Relationship Between Concentration and Price-Cost Margins" (with I. Domowitz and B.C. Petersen), *RAND Journal of Economics* 17 (Spring 1986): 1-17.

"Inventory Optimization in the U.S. Petroleum Industry: Empirical Analysis and Implications for Energy Emergency Policy" (with R. Weiner), *Management Science 32* (July 1986): 773-790.

"Social Security, Liquidity Constraints, and Pre-Retirement Consumption," *Southern Economic Journal* 51 (October 1985): 471-484.

"Personal Taxation, Pension Wealth, and Portfolio Composition," *Review of Economics and Statistics* 67 (February 1985): 53-60.

"Industry Margins and the Business Cycle: Some New Microeconomic Evidence" (with I. Domowitz and B.C. Petersen), *Economics Letters* 19 (1985): 73-77.

"Oil Supply Shocks and International Policy Coordination" (with R. Weiner), *European Economic Review* 30 (February 1986): 91-106.

"Do IRAs and Keoghs Increase Saving?," *National Tax Journal* 37 (March 1984): 43-54.
The Financial Impacts of Social Security: A Study of Effects on Household Wealth Accumulation and Allocation, in Monograph Series in Finance and Economics, New York University, 1983.

Writings on Public Policy

How Capital Markets Enhance Economic Performance and Facilitate Job Creation (with W.C. Dudley), New York: Goldman Sachs Markets Institute, 2004.

"The Economist as Public Intellectual," *Journal of Economic Education* 35 (Fall 2004): 391-394.

"Success Taxes, Entrepreneurship, and Innovation," (with W.M. Gentry), in *Innovation and the Economy*, volume 5, forthcoming.

"Tax Policy and International Competitiveness," *Taxes-The Tax Magazine* (March 2004):233-241.

"Capital-Market Imperfections, Investment, and the Monetary Transmission Mechanism," in Heinz Hermann, ed., *Investing for the Future*. Frankfurt: Deutsche Bundesbank, 2001.

"The Growth of Institutional Stock Ownership: A Promise Unfulfilled,"(with F.R. Edwards), *Journal of Applied Corporate Finance* 13 (Fall 2000): 92-104.

"Telecommunications, the Internet, and the Cost of Capital," in Ingo Vogelsang and Benjamin Compaine, eds., *The Internet Upheaval*, Cambridge: MIT Press, 2000.

"Federal Deposit Insurance: Economic Efficiency or Politics?" (with N. Economides and D. Palia), *Regulation* 22 (1999): 15-17.

Institutional Investors and Corporate Behavior (with G. R. Downes, Jr. and E. Houminer), Washington, D.C., American Enterprise Institute, 1999.

The Magic Mountain: Is There a Budget Surplus? (with K.A. Hassett), Washington, D.C.: American Enterprise Institute, 1999.

Medical School Financing and Research: Problems and Policy Options, Washington, D.C.: American Enterprise Institute, 1999.

"The Golden Goose: Understanding (and Taxing) the Saving of Entrepreneurs," in Gary D. Libecap, ed., *Advances in the Study of Entrepreneurship, Innovation, and Growth*, volume 10, Greenwich: JAI Press, 1998.

"U.S. Tax Policy and Multinational Corporations: Incentives, Problems, and Directions for Reform," in Dale W. Jorgenson and James M. Poterba, eds., *Borderline Case: International Tax Policy, Corporate Research and Development, and Investment*, Washington, D.C.: National Research Council, 1998.

"Distributional Tables and Tax Policy," in David F. Bradford, ed., *Distributional Analysis of Tax Policy*, Washington, D.C.: AEI Press, 1995.

"Is There a 'Credit Channel' for Monetary Policy?," *Federal Reserve Bank of St. Louis Review* 77 (May/June 1995): 63-77.

"U.S. Tax Policy and Foreign Direct Investment: Incentives, Problems, and Reform," *Tax Policy and Economic Growth,* Washington, DC: American Council for Capital Formation, 1995.

"The Use of 'Distribution Tables' in the Tax Policy Process," *National Tax Journal* 46 (December 1993): 527-537.

"Securities Transactions Taxes: Tax Design, Revenue, and Policy Considerations," *Tax Notes* (November 22, 1993): 985-1000.

"Corporate Tax Integration: A View from the Treasury Department," *Journal of Economic Perspectives* (Winter 1993): 115-132; reprinted in P. Roberti, ed., *Financial Markets and Capital Income Taxation in a Global Economy*, Amsterdam: North-Holland, 1998.

"The President's 1992 Health Care White Paper: An Economic Perspective," *National Tax Journal* 45 (September 1992): 347-356.

"Household Income Changes Over Time: Some Basic Questions and Facts," *Tax Notes* (August 24, 1992).

"Household Income Mobility During the 1980s: A Statistical Assessment Based on Tax Return Data" (with J. Nunns and W. Randolph), *Tax Notes* (June 1, 1992).

"Debt Renegotiation," *Institutional Investor* 24 (June 1990).

"Petroleum Regulation and Public Policy" (with R. Weiner), in Leonard Weiss and Michael Klass (eds.), *Regulatory Reform: What Actually Happened,* Boston: Little, Brown, and Company, 1986.

"Natural Gas: The Regulatory Transition" (with R. Braeutigam), in Leonard Weiss and Michael Klass (eds.), *Regulatory Reform: What Actually Happened*, Boston: Little, Brown, and Company, 1986.

"Natural Gas Contracting in Practice: Evidence from the United States" (with R. Weiner), in Michael Hoel and Bruce Wolman (eds.), *Natural Gas Markets and Contracts, Contributions to Economic Analysis Series*, North-Holland, 1986.

"Contracting and Regulation Under Uncertainty: The Natural Gas Market" (with R. Weiner), in John P. Weyant and Dorothy B. Sheffield (eds.), *The Energy Industries in Transition: 1985-2000*, Boulder: Westview Press, 1985.

"Oil and OECD Economies: Measuring Stockpile Coordination Benefits" (with J. Marquez and R. Weiner), n Mark Baier (ed.), *Energy and Economy: Global Interdependencies*, Bonn: Gesellschaft fur Energiewissenschaft und Energiepolitik, 1985.

"Managing the Strategic Petroleum Reserve: Energy Policy in a Market Setting" (with R. Weiner), *Annual Review of Energy* 10 (1985): 339-359.

"Modeling Oil Price Fluctuations and International Stockpile Coordination" (with R. Weiner), *Journal of Policy Modeling* 7 (Summer 1985): 339-359.

"Crude Oil Trading and Price Stability" (with R. Weiner), in William F. Thompson and David J. De Angelo (eds.), *World Energy Markets: Stability or Cyclical Change*, Boulder: Westview Press, 1985.

"Energy Price Shocks, Inflation, and Economic Activity: Simulation Results of the Hubbard-Fry Model", in Bert Hickman and Hillard Huntington (eds.), *Macroeconomic Impact of Oil Supply Shocks: Report of the Energy Modeling Forum VII Project*, 1985.

"Drawing Down the Strategic Petroleum Reserve: The case for Selling Futures Contracts" (with S. Devarajan), in Alvin Alm and Robert Weiner (eds.), *Oil Shock: Policy Response and Implementation*, Cambridge: Ballinger Press, 1983.

"Government Stockpiles in a Multi-Country World: Coordination versus Competition" (with R. Weiner), in Alvin Alm and Robert Weiner (eds.), *Oil Shock: Policy Response and Implementation*, Cambridge: Ballinger Press, 1983.

"The 'Sub-Trigger' Crisis: An Economic Analysis of Flexible Stock Policies" (with R. Weiner), *Energy Economics* 5 (July 1983): 178-189.

"Temporary Tax Reductions as Responses to Oil Shocks," in Alvin Alm and Robert Weiner (eds.), *Oil Shock: Policy Response and Implementation*, Cambridge: Ballinger Press, 1983.

"Policy Analysis with Your Hands Tied: The Case of Disruption Tariff Under Oil Price Controls," in Fred S. Roberts (ed.), *Energy Modeling IV: Planning for Energy Disruptions*, Institute of Gas Technology, 1982.

Comments, Notes, and Reviews

"Financing Constraints and Corporate Investment: Response to Kaplan and Zingales," *Quarterly Journal of Economics* 115 (May 2000): 695-705.

"Comment" on Charles Hadlock, Joel Houston, and Michael Ryngaert, "The Role of Managerial Incentives in Bank Acquisitions," *Journal of Banking and Finance* 23 (1999): 250-254.

"Comment" on D.H. Moss, "Courting Disaster?: The Transformation of Federal Disaster Policy Since 1903," in K.A. Froot, ed., *The Financing of Catastrophic Risk*, Chicago: University of Chicago Press, 1999.

"Market for Corporate Control" (with D. Palia), in P. Newman, ed., *The New Palgrave Dictionary of Economics and the Law*, London: Macmillan, 1998.

"Comment" on Joseph Peek and Eric Rosengren, "Do Monetary Policy and Regulatory Policy Affect Bank Loans?" in *Is Bank Lending Important for the Transmission of Monetary Policy?* Federal Reserve Bank of Boston, Conference Series (Proceedings) 39 (1995): 47-79.

"Introduction," in M. Feldstein, J.R. Hines, and R.G. Hubbard, eds., *Effects of Taxation on Multinational Corporations*, Chicago: University of Chicago Press, 1995.

"Introduction," in M. Feldstein, J.R. Hines, and R.G. Hubbard, eds., *Taxing Multinational Corporations*, Chicago: University of Chicago Press, 1995.

"Investment Under Uncertainty: Keeping One's Options Open," *Journal of Economic Literature* 32(December 1994): 1794-1807.

"Introduction," in A. Giovannini, R.G. Hubbard, and J. Slemrod, eds., *Studies in International Taxation*, Chicago: University of Chicago Press, 1993.

"Comment" on G. Peter Wilson, "The Role of Taxes in Location and Source Decisions," in A. Giovannini, R.G. Hubbard, and J.B. Slemrod, eds., *Studies in International Taxation*, Chicago: University of Chicago Press, 1993.

"Market Structure and Cyclical Fluctuations in U.S. Manufacturing: Reply" (with I. Domowitz and B.C. Petersen), *Review of Economics and Statistics*, 1993.

"Introduction," in R.G. Hubbard, ed., *Financial Markets and Financial Crises*, Chicago: University of Chicago Press, 1991.

"Introduction," in R.G. Hubbard, ed., *Asymmetric Information, Corporate Finance, and Investment*, Chicago: University of Chicago Press, 1990.

"Comment" on Alberto Giovannini and James R. Hines, Jr., "Capital Flight and Tax Competition: Are There Viable Solutions to Both Problems?," in A. Giovannini and C. Mayer, eds., *European Financial Integration*, London: Centre for Economic Policy Research, 1990.

"Comment" on Roger H. Gordon and Jeffrey K. MacKie-Mason, "Effects of the Tax Reform Act of 1986 on Corporate Financial Policy and Organizational Form," in J.B. Slemrod, ed., *Do Taxes Matter?: Economic Impacts of the Tax Reform Act of 1986*, Cambridge: MIT Press, 1990.

"Comment" on James M. Poterba, "Tax Policy and Corporate Saving," *Brookings Papers on Economic Activity*, 1987:2.

"Comment" on Robert E. Hall, "Market Structure and Macro Fluctuations," *Brookings Papers on Economic Activity, 1986*:2.

"Comment" on Alan S. Blinder and Angus Deaton, "The Time-Series Consumption Function Revisited," *Brookings Papers on Economic Activity*, 1985:2.

"Comment" on Benjamin S. Friedman and Mark Warshawsky, "The Cost of Annuities: Implications for Saving Behavior and Bequests," in Zvi Bodie, John Shoven, and David Wise (eds.), *Pensions in the U.S. Economy*, Chicago: University of Chicago Press, 1987.

"Energy Security: Book Reviews," *Energy Journal* 4 (April 1983).

"When the Oil Spigot is Suddenly Turned Off: Some Further Thoughts" (with R. Weiner), *Journal of Policy Analysis and Management* 2 (Winter 1983).

Submitted Papers and Working Papers

"Tax Policy and Entry into Entrepreneurship" (with W.M. Gentry), Mimeograph, Columbia University, 2001.

"Tax Policy and Wage Growth" (with W. M. Gentry), Mimeograph, Columbia University, 2001.

"Investor Protection, Ownership, and Investment" (with C.P. Himmelberg and I. Love), Mimeograph, Columbia University, 2000.

"Incentive Pay and the Market for CEOs: An Analysis of Pay-for-Performance Sensitivity" (with C.P. Himmelberg), Mimeograph, Columbia University, 2001.

"Noncontractible Quality and Organizational Form in the U.S. Hospital Industry," (with K.A. Hassett), Mimeograph, Columbia University, 1999.

"Entrepreneurship and Household Saving," (with W. M. Gentry), Mimeograph, Columbia University, 2001.

"Corporate Payouts and the Tax Price of Corporate Retentions: Evidence from the Undistributed Profits Tax of 1936-37" (with P. Reiss),Working Paper No. 3111, National Bureau of Economic Research, September 1989.

"Market Structure, Durable Goods, and Cyclical Fluctuations in Markups" (with I. Domowitz and B. Petersen), Mimeograph, Northwestern University, 1987.

"Finite Lifetimes, Borrowing Constraints, and Short-Run Fiscal Policy" (with K. Judd), Working Paper No. 2158, National Bureau of Economic Research, 1987.

GRANTS RECEIVED

"Institutional Investors, Boards of Directors, and Corporate Governance," Korn/Ferry, 1997.

"An Economic Analysis of Saving Incentives," Securities Industry Association, 1994, with Jonathan Skinner.

"Securities Transactions Taxes: Tax Design, Revenue, and Policy Considerations," Catalyst Institute, 1993.

"Precautionary Saving in the U.S. Economy," Bradley Foundation, 1989-1990, with Jonathan Skinner and Stephen Zeldes.

"Taxation, Corporate Leverage, and Financial Distress," Garn Institute for Finance, 1989-1990.

"Precautionary Saving in a Dynamic Model of Consumption and Labor Supply," National Science Foundation (Economics Group SES-8707997), 1987-1989, with Jonathan Skinner and Stephen Zeldes.

"Industrial Behavior and the Business Cycle: A Panel Data Study of U.S. Manufacturing," National Science Foundation (Economics Group SES-8420152), 1985-1987, with Ian Domowitz and Bruce Petersen.

"Efficient Contracting and Market Power: Evidence from the U.S. Natural Gas Market," Transportation Center, Northwestern University, Summer 1985.

"Constructing a Panel Data Base for Studies of U.S. Manufacturing," University Research Grants Committee, Northwestern University, 1985-1986.

"Economic Analysis of Multiple-Price Systems: Theory and Application, "National Science Foundation (Regulatory Analysis and Policy Group, SES-8408805), 1984-1985.

"Contracting and Price Adjustment in Product Markets," University Research Grants Committee, Northwestern University, 1983-1984.

PAPERS PRESENTED

University Seminars

Bard College, University of Bergamo, University of California (Berkeley), University of California (Los Angeles), Carleton, University of Chicago, Columbia, University of Dubuque, Emory, University of Florida, George Washington, Georgetown, Harvard, Hendrix College, University of Illinois, Indiana University, Johns Hopkins, Laval, Lehigh, University College (London), University of Kentucky, London School of Economics, MIT, University of Maryland, Miami University, University of Michigan, University of Minnesota, New York University, Northwestern, Oxford, University of Pennsylvania, Princeton, Rice, University of Rochester, Stanford, Syracuse, University of Texas, Tufts, University of Virginia, University of Wisconsin (Madison), University of Wisconsin (Milwaukee), Virginia Tech, and Yale.

Conference Papers Presented

American Council for Capital Formation, Washington, DC, June 1994.

American Economic Association, San Diego January 2004; Atlanta, January 2002; New Orleans, January 2001; Boston, January 2000; New York, January 1999; New Orleans, January 1997; San Francisco, January 1996; Washington, D.C., January 1995; Boston, January 1994; Anaheim, January 1993; Washington D.C., December 1990; Atlanta, December 1989; New York, December 1988; Chicago, December 1987; New Orleans, December 1985; Dallas, December 1984.

American Enterprise Institute, Conference on Multinational Corporations, 2004, 2003; Conference on Multinational Corporations, February 1999; Conference on Income Inequality, January 1999; Conference on Transition Costs of Fundamental Tax Reform, November 1998; Conference Series on Social Insurance Reform, 1997-1998; Conference Series on Fundamental Tax Reform, 1995-1998; Conference on Distributional Analysis of Tax Policies, Washington, D.C., December 1993.

American Finance Association, San Diego, January 2004; Boston, January 2000; New York, January 1999; New Orleans, January 1997.

Association of Environmental and Resource Economists, Dallas, December 1984; San Francisco, December 1983.

Association of Public Policy Analysis and Management, New Orleans, October 1984; Philadelphia, October 1983.

Bipartisan Commission on Entitlement and Tax Reform, Washington, DC, June 1994.

Brookings Panel on Economic Activity, September 1994, April 1988, September 1987, September 1986, April 1986, September 1985.

Centre for Economic Policy Research Conference on Capital Taxation and European Integration, London, September 1989.

Conference on International Perspectives on the Macroeconomic and Microeconomic Implications of Financing Constraints, Centre for Economic Policy Research, Bergamo, Italy, October 1994.

Congressional Research Service Conference for New Members of Congress, Williamsburg, January 1999.

Congressional Research Service Conference for Members of the Ways and Means Committee, Baltimore, October 2001.

Deutsche Bundesbank Conference on Investing for the Future, Frankfurt, Germany, May 2000.

Eastern Economic Association, Boston, March 1988; Boston, February 1983.

Econometric Society, New Orleans, January 1997; San Francisco, January 1996; Washington, D.C., January 1995; New Orleans, January 1992; Washington, December 1990; Atlanta, December 1989; New York, December 1988; Chicago, December 1987; New Orleans, December 1986; New York, December 1985; Boston, August 1985; Madrid, September 1984; San Francisco, December 1983; Pisa, August 1983.

Energy Modeling Forum, Stanford University, August 1983; February 1983; August 1982.

European Commission, Conference on Taxation of Financial Instruments, Milan, June 1998.

European Institute for Japanese Studies, Tokyo, September 2002, March 2002.

Federal Reserve Bank of Boston, Annual Economic Conference, North Falmouth, Massachusetts, June 1995.

Federal Reserve Bank of Kansas City Symposium on "Financial Market Volatility--Causes, Consequences, and Policy Responses," Jackson Hole, Wyoming, August 1988.

Federal Reserve Bank of New York, Conference on Consolidation of the Financial Services Industry, New York, March 1998.

Federal Reserve Bank of Philadelphia Conference on Economic Policy, Philadelphia, November 2001.

Federal Reserve Bank of St. Louis, Conference on Economic Policy, St. Louis, October 1994.

Harvard Law School U. S.-Japan Symposium, Tokyo, December 2003; Washington, D. C., September 2002; Tokyo, December 2001.

Hoover Institution, Conference on Fundamental Tax Reform, December 1995.

The Institute of Gas Technology, Washington, DC, May 1982.

The Institute of Management Science/Operations Research Society of America, Orlando, November 1983; Chicago, April 1983.

International Association of Energy Economists, Boston, November 1986; Philadelphia, December 1985; Bonn, June 1985; San Francisco, November 1984; Washington, DC, June 1983; Denver, November 1982; Cambridge (England), June 1982; Houston, November 1981.

International Conference on the Life Cycle Model, Paris, June 1986.

International Institute of Public Finance, Innsbruck, August 1984.

International Seminar on Public Economics, Amsterdam, April 1997.

National Academy of Sciences, February 1997.

National Association of Business Economists, Orlando, September 2003; Washington, September 2002; New York, September 2001; Boston, September 1996; Dallas, September 1992; New Orleans, October 1987.

National Bureau of Economic Research - IMEMO Conference on the American Economy, Moscow, August 1989.

National Bureau of Economic Research Summer Institute, July-August 2003; July-August 2000; July-August 1999; July-August 1998; August 1997; July 1995; July 1994; July 1993; August 1992; July-August 1991; July-August 1990; July-August 1989; July-August 1988; July-August 1987; July-August 1986; July 1985; July 1984; July 1983.

National Bureau of Economic Research Conference on Asymmetric Information, Corporate Finance, and Investment, Cambridge, May 1989.

National Bureau of Economic Research Conference on Chinese Economic Reform, Shanghai, China, July 2000.

National Bureau of Economic Research Conference on Financial Crises, Key Biscayne, March 1990.

National Bureau of Economic Research Conference on Government Expenditure Programs, Cambridge, November 1986.

National Bureau of Economic Research Conference on Indian Economic Reform, Rajasthan, India, December 1999.

National Bureau of Economic Research Conference on Innovation Policy, Washington, DC, April 2004, April 2003.

National Bureau of Economic Research Conference on International Taxation, Washington, DC, April 1994; Cambridge, January 1994; New York, September 1991; Nassau, Bahamas, February 1989.

National Bureau of Economic Research, Macroeconomic Annual Conference, Cambridge, MA, April 2004.

National Bureau of Economic Research Conference on Macroeconomics and Industrial Organization, Cambridge, July 1988; Cambridge, July 1987; Cambridge, July 1986; Chicago, November 1985.

National Bureau of Economic Research Conference on Nonprofit Organizations, Cheeca Lodge, January 2002; Cambridge, October 2001.

National Bureau of Economic Research Conference on Pensions, Baltimore, March 1985; San Diego, April 1984.

National Bureau of Economic Research Conference on Productivity, March 1988; March 1987.

National Bureau of Economic Research Conference on Public Economics, Cambridge, April 1999, April 1994, April 1993, November 1991, April 1991, March 1988, November 1987, March 1987.

National Bureau of Economic Research Conference on Tax Policy and the Economy, Washington, DC, October 2001, November 1998, November 1996, November 1994, November 1991, November 1989.

National Bureau of Economic Research Trans-Atlantic Public Economics Seminar, London, May 2002; Gerzensee, May 2000; Turin, May 1994.

Organization for Economic Cooperation and Development, Economic Policy Committee Meeting, Paris, November 2002, April 2002, November 2001, April 2001.

National Tax Association/Tax Institute of America, Washington, DC, June 2000; Atlanta, October 1999; Arlington, May 1992; Seattle, October 1983.

Organization for Economic Cooperation and Development, Ministerial Meeting, Paris, May 2002, May 2001.

Princeton Center for Economic Policy Conference, October 2000, October 1995.

Sveriges Riksbank/Stockholm School of Economics Conference on Asset Markets and Monetary Policy, Stockholm, Sweden, June 2000.

U.S. House of Representatives, Budget Committee, June 2001.

U.S. House of Representatives, Committee on Ways and Means, Washington, DC, June 1999; April 1997, June 1996, July 1992.

U.S. Joint Economic Committee, Washington, DC, February 2003, October 2002, October 2001, May 2001.

U. S. Senate Committee on Banking, Housing, and Urban Affairs, Washington, DC, October 2001, May 2001.

U.S. Senate Committee on Budget, February 2003, September 2001.

U. S. Senate Committee on Commerce, Science, and Technology, July 2002.

U.S. Senate Committee on Finance, Washington, DC, February 2003, February 2002, February 1997, January 1995, January 1992, December 1981.

EXHIBIT NO.___(RGH-2)

SCE&G GAS DISTRIBUTION EQUITY COST OF CAPITAL
DCF MODEL AND CAPM ANALYSIS SUMMARY
INCLUDING FLOTATION COSTS
NATURAL GAS DISTRIBUTION COMPANIES

Methodology	Minimum	Maximum	Mean
	[1]	[2]	[3]
DCF Model	9.14%	10.44%	9.61%
CAPM	12.26%	13.05%	12.66%

Notes and Sources:

See EXHIBIT NO.___(RGH-3).

Total direct cost of seasoned equity offerings for utilities was found to be 4.92 percent from Inmoo Lee, Scott Lochhead, Jay Ritter, and Quanshui Zhao, *The Costs of Raising Capital, Journal of Financial Research, Vol. XIX, No. 1,* pp. 59-74, Spring 1996. (1 - 0.0492 = 0.9508)

[1]: = Minimum / .9508.

[2]: = Maximum / .9508.

[3]: = Mean / .9508.

EXHIBIT NO.___(RGH-3)

SCE&G GAS DISTRIBUTION EQUITY COST OF CAPITAL
DCF MODEL AND CAPM ANALYSIS SUMMARY
NATURAL GAS DISTRIBUTION COMPANIES

Methodology	Minimum	Maximum	Mean
	[1]	[2]	[3]
DCF Model	8.69%	9.93%	9.14%
CAPM	11.65%	12.41%	12.03%

Notes and Sources:

See EXHIBIT NO.___(RGH-3A).

[1]: Minimum value of the median.

[2]: Maximum value of the median.

[3]: Mean of the median.

EXHIBIT NO.___(RGH-3A)

SCE&G GAS DISTRIBUTION EQUITY COST OF CAPITAL
DCF MODEL AND CAPM -- DETAILED SUMMARY
NATURAL GAS DISTRIBUTION COMPANIES

	DCF Model*		
Source of Growth Estimate	Minimum	Maximum	Median
Bloomberg	5.39%	10.88%	8.69%
Zacks	7.94%	11.24%	8.80%
Value Line	7.35%	37.40%	9.93%

	CAPM (Small Cap Beta)**		
Beta Methodology	Minimum	Maximum	Median
Two-Year Weekly Adjusted Beta	5.55%	13.88%	12.41%
Value Line Beta	10.39%	11.83%	11.65%

Notes and Sources:

* See EXHIBIT NO.___(RGH-6).

** See EXHIBIT NO.___(RGH-7). Includes a small cap premium of 1.91 percent.

EXHIBIT NO.___(RGH-4)

GAS-DISTRIBUTION SECTOR COMPANY DATA

		Bloomberg												Zacks Company		Value Line					
Company	Ticker	Date	Last Price	Market Cap (mil)	P/B	P/S	EPS	Annual Div	Est'd Long Term Growth	Adjusted Beta	ROE	Trailing 12 months Net Sales	Moody's Debt Rating	Report Date	EPS Growth Rate	Report Date	Beta	Annual Dividend Paid	Est'd Cash Flow	LT Debt (mil)	Preferred Stock (mil)
				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]		[11]		[12]	[13]	[14]	[15]	[16]
AGL Resources Inc	ATG	5/25/05	$34.74	$2,679	1.85	1.19	$2.30	$1.18	4.20%	0.80	13.13%	$2,094.00	N/A	5/20/05	5.00%	3/18/05	0.80	$1.18	4.00%	$1,623.0	$0.0
Atmos Energy Corp	ATO	5/25/05	$27.45	$2,194	1.34	0.47	$1.60	$1.23	6.13%	0.83	8.66%	$4,092.64	Baa3	5/20/05	5.00%	3/18/05	0.70	$1.23	12.00%	$2,255.2	$0.0
Cascade Natural Gas Corp	CGC	5/25/05	$19.41	$220	1.78	0.69	$1.19	$0.96	4.50%	0.86	11.51%	$316.06	Baa1	5/20/05	6.00%	3/18/05	0.75	$0.96	11.00%	$128.9	$0.0
Chesapeake Utilities Corp	CPK	5/25/05	$28.69	$165	2.12	0.86	$1.64	$1.12	3.00%	0.54	12.50%	$192.04	WR	5/20/05	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Delta Natural Gas Co Inc	DGAS	5/25/05	$25.49	$82	1.67	0.93	$1.20	$1.18	4.00%	0.40	8.10%	$87.82	N/A	5/20/05	4.00%	N/A	N/A	N/A	N/A	N/A	N/A
Energen Corp	EGN	5/25/05	$61.06	$2,237	2.76	2.35	$3.51	$0.77	6.50%	1.01	16.96%	$946.96	Baa2	5/20/05	7.00%	3/18/05	0.70	$0.77	NMF	$512.9	$0.0
Energy West Inc	EWST	5/25/05	$8.34	$22	1.69	0.30	-$0.21	$0.00	N/A	0.31	-3.87%	$72.93	N/A	5/20/05	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Energysouth Inc	ENSI	5/25/05	$26.68	$209	2.05	1.73	$1.62	$0.60	N/A	0.83	14.08%	$120.88	N/A	5/20/05	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Keyspan Corp	KSE	5/25/05	$38.84	$6,277	1.54	0.92	$2.86	$1.79	3.38%	0.76	12.11%	$6,783.22	A3	5/20/05	4.00%	3/18/05	0.80	$1.79	1.00%	$4,420.0	$75.0
Laclede Group Inc	LG	5/25/05	$29.19	$616	1.61	0.42	$1.82	$1.36	5.00%	1.03	11.01%	$1,461.77	N/A	5/20/05	5.00%	3/18/05	0.75	$1.36	7.00%	$380.4	$1.1
National Fuel Gas Co	NFG	5/25/05	$26.78	$2,238	1.68	1.09	$2.03	$1.12	5.00%	0.77	13.93%	$2,032.79	Baa1	5/20/05	5.00%	3/18/05	0.80	$1.11	3.50%	$1,130.3	$0.0
Nicor Inc	GAS	5/25/05	$38.78	$1,712	2.20	0.61	$1.71	$1.86	2.17%	0.83	9.99%	$2,803.80	N/A	5/20/05	3.00%	3/18/05	1.05	$1.86	3.50%	$495.3	$1.8
Northwest Natural Gas Co	NWN	5/25/05	$36.03	$993	1.66	1.30	$1.87	$1.30	5.75%	0.85	9.41%	$761.93	A3	5/20/05	5.00%	3/18/05	0.65	$1.30	5.00%	$484.9	$0.0
Peoples Energy Corp	PGL	5/25/05	$41.19	$1,566	1.78	0.62	$2.19	$2.17	4.00%	0.87	9.49%	$2,492.61	A3	5/20/05	5.00%	3/18/05	0.80	$2.17	2.00%	$897.2	$0.0
Piedmont Natural Gas Co	PNY	5/25/05	$24.06	$1,845	2.03	1.16	$1.28	$0.86	4.98%	0.87	12.82%	$1,591.51	A3	5/20/05	5.00%	3/18/05	0.75	$0.88	6.50%	$660.0	$0.0
RGC Resources Inc	RGCO	5/25/05	$26.42	$55	1.45	0.49	$6.38	$5.68	N/A	-0.12	36.70%	$111.55	N/A	5/20/05	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Semco Energy Inc	SEN	5/25/05	$5.24	$149	0.90	0.28	-$0.30	$0.07	4.00%	1.01	-4.93%	$527.11	Ba2	5/20/05	N/A	3/18/05	0.70	$0.15	N/A	$498.9	$50.0
South Jersey Industries Inc	SJI	5/25/05	$55.63	$778	N/A	0.91	$3.09	$1.66	5.50%	0.83	13.17%	$842.17	N/A	5/20/05	6.00%	3/18/05	0.55	$1.64	6.50%	$327.0	$1.7
Southern Union Co	SUG	5/25/05	$23.77	$2,510	1.47	N/A	$1.41	N/A	5.75%	1.05	10.38%	N/A	Baa3	5/20/05	6.00%	3/18/05	0.95	$0.00	7.50%	$2,074.7	$230.0
Southwest Gas Corp	SWX	5/25/05	$24.50	$922	1.23	0.57	$1.61	$0.82	5.00%	0.89	7.38%	$1,546.54	Baa2	5/20/05	5.00%	3/18/05	0.75	$0.82	6.00%	$1,264.7	$0.0
Vectren Corp	VVC	5/25/05	$26.86	$2,044	1.80	1.18	$1.43	$1.17	4.50%	0.82	9.96%	$1,721.70	N/A	5/20/05	6.00%	4/1/05	0.75	$1.16	4.50%	$1,065.0	$0.1
WGL Holdings Inc	WGL	5/25/05	$31.86	$1,551	1.64	0.71	$1.99	$1.31	4.00%	0.84	11.56%	$2,197.58	N/A	5/20/05	4.00%	3/18/05	0.75	$1.30	5.50%	$573.7	$28.2
Mean			$30.05	$1,412	1.73	0.89	$1.92	$1.34	4.60%	0.77	11.09%	$1,561.79			5.06%		0.76	$1.16	5.70%	$1,105.4	$22.8
Median			$27.16	$1,272	1.68	0.86	$1.68	$1.18	4.50%	0.83	11.26%	$1,461.77			5.00%		0.75	$1.18	5.50%	$660.0	$0.0
Standard Deviation			$12.60	$1,417	0.38	0.49	$1.32	$1.12	1.10%	0.27	7.68%	$1,606.65			0.97%		0.11	$0.56	2.98%	$1,049.7	$57.5
Scana Corp	SCG	5/25/05	$41.30	$4,688	1.84	1.15	$2.30	$1.49	4.50%	0.74	10.81%	$4,015.00	A3	5/20/05	5.00%	3/4/05	0.75	$1.49	3.50%	$3,185.0	$115.0

Notes and Sources:

List of comparable companies from EXHIBIT NO.___(RGH-12).

[1]: The current market capitalization. Equal to the most recent number of shares outstanding times the current stock price.

[2]: Price to book ratio. Equal to the ratio of the stock's price divided by the book value per share.

[3]: Price to sales ratio. The ratio of a stock's period end price divided by the sales per share for the same period end. Average shares outstanding are used when calculating sales per share.

[4]: Earnings per share. Computed as net income available to common shareholders divided by the basic weighted average shares outstanding.

[5]: Trailing 12-month dividends per share, calculated by adding dividends per share for the most recent four quarters.

[6]: Received directly from contributing analysts, they are not directly calculated by I/B/E/S. While different analysts apply different methodologies, the Long Term Growth Forecast generally represents an expected annual increase in operating earnings over the company's next full business cycle. In general, these forecasts refer to a period of between three to five years.

[7]: Adjusted beta based on two-year weekly regression versus S&P 500 Index.

[8]: Return on equity is calculated as trailing 12 month net income (losses) minus trailing 12 month cash preferred dividends, divided by average of total common equity, times 100.

[9]: Calculating by adding company sales for the most recent four quarters.

[10]: Moody's senior unsecured debt rating.

[11]: Next 3-5 year estimated EPS growth rate.

[12]: Adjusted beta based on five-year weekly regression versus the NYSE Composite.

[13]: Cumulative dividends paid over the previous 4 quarters.

[14]: Estimated 2001-2003 to 2008-2010 or 2002-2004 to 2008-2010 "Cash Flow." Annual rates of change (per share).

[15]: Long Term Debt.

[16]: Preferred Stock.

EXHIBIT NO.___(RGH-5)

GAS-DISTRIBUTION SECTOR COMPANY DATA
CAPITAL STRUCTURE DATA

		Book Value								Market Value							
		Debt		Preferred Stock		Equity		Total		Debt		Preferred Stock		Equity		Total	
Company	Ticker	$	%	$	%	$	%	$	%	$	%	$	%	$	%	$	%
		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
AGL Resources Inc	ATG	1,623.00	52.85	0.00	0.00	1,448.00	47.15	3,071.00	100.00	1,623.00	37.73	0.00	0.00	2,678.80	62.27	4,301.80	100.00
Atmos Energy Corp	ATO	2,255.20	57.93	0.00	0.00	1,637.56	42.07	3,892.76	100.00	2,255.20	50.68	0.00	0.00	2,194.33	49.32	4,449.53	100.00
Cascade Natural Gas Corp	CGC	128.90	50.99	0.00	0.00	123.87	49.01	252.77	100.00	128.90	36.89	0.00	0.00	220.49	63.11	349.39	100.00
Chesapeake Utilities Corp	CPK	N/A	N/A	N/A	N/A	77.91	100.00	77.91	100.00	N/A	N/A	N/A	N/A	165.17	100.00	165.17	100.00
Delta Natural Gas Co Inc	DGAS	53.05	51.88	N/A	N/A	49.21	48.12	102.26	100.00	53.05	39.23	N/A	N/A	82.18	60.77	135.23	100.00
Energen Corp	EGN	512.90	38.76	0.00	0.00	810.52	61.24	1,323.42	100.00	512.90	18.65	0.00	0.00	2,237.04	81.35	2,749.94	100.00
Energy West Inc	EWST	21.70	62.62	N/A	N/A	12.95	37.38	34.65	100.00	21.70	49.78	N/A	N/A	21.89	50.22	43.59	100.00
Energysouth Inc	ENSI	84.69	45.32	N/A	N/A	102.19	54.68	186.88	100.00	84.69	28.79	N/A	N/A	209.49	71.21	294.19	100.00
Keyspan Corp	KSE	4,420.00	51.57	75.00	0.88	4,076.04	47.56	8,571.04	100.00	4,420.00	41.03	75.00	0.70	6,277.10	58.27	10,772.10	100.00
Laclede Group Inc	LG	380.40	49.77	1.10	0.14	382.79	50.08	764.29	100.00	380.40	38.12	1.10	0.11	616.29	61.77	997.79	100.00
National Fuel Gas Co	NFG	1,130.30	45.91	0.00	0.00	1,331.88	54.09	2,462.18	100.00	1,130.30	33.56	0.00	0.00	2,237.55	66.44	3,367.85	100.00
Nicor Inc	GAS	495.30	38.84	1.80	0.14	778.00	61.01	1,275.10	100.00	495.30	22.42	1.80	0.08	1,711.60	77.49	2,208.70	100.00
Northwest Natural Gas Co	NWN	484.90	44.78	0.00	0.00	597.99	55.22	1,082.89	100.00	484.90	32.82	0.00	0.00	992.66	67.18	1,477.56	100.00
Peoples Energy Corp	PGL	897.20	50.49	0.00	0.00	879.76	49.51	1,776.96	100.00	897.20	36.42	0.00	0.00	1,565.98	63.58	2,463.18	100.00
Piedmont Natural Gas Co	PNY	660.00	42.07	0.00	0.00	908.84	57.93	1,568.84	100.00	660.00	26.35	0.00	0.00	1,844.95	73.65	2,504.95	100.00
RGC Resources Inc	RGCO	26.00	40.69	N/A	N/A	37.89	59.31	63.89	100.00	26.00	32.12	N/A	N/A	54.95	67.88	80.95	100.00
Semco Energy Inc	SEN	498.90	69.81	50.00	7.00	165.73	23.19	714.63	100.00	498.90	71.47	50.00	7.16	149.15	21.37	698.05	100.00
South Jersey Industries Inc	SJI	327.00	99.48	1.70	0.52	N/A	N/A	328.70	100.00	327.00	29.56	1.70	0.15	777.53	70.29	1,106.23	100.00
Southern Union Co	SUG	2,074.70	51.71	230.00	5.73	1,707.43	42.56	4,012.13	100.00	2,074.70	43.09	230.00	4.78	2,509.92	52.13	4,814.62	100.00
Southwest Gas Corp	SWX	1,264.70	62.80	0.00	0.00	749.29	37.20	2,013.99	100.00	1,264.70	57.85	0.00	0.00	921.62	42.15	2,186.32	100.00
Vectren Corp	VVC	1,065.00	48.40	0.10	0.00	1,135.32	51.60	2,200.42	100.00	1,065.00	34.26	0.10	0.00	2,043.58	65.74	3,108.68	100.00
WGL Holdings Inc	WGL	573.70	37.06	28.20	1.82	945.95	61.11	1,547.85	100.00	573.70	26.64	28.20	1.31	1,551.36	72.05	2,153.26	100.00
Mean		903.69	52.08	22.82	0.95	855.20	51.91	1,696.57	100.00	903.69	37.50	22.82	0.84	1,411.98	63.56	2,292.23	100.00
Median		512.90	50.49	0.00	0.00	778.00	50.08	1,299.26	100.00	512.90	36.42	0.00	0.00	1,272.01	64.66	2,169.79	100.00
Standard Deviation		1,031.11	13.77	57.54	2.10	919.18	14.48	1,947.76	0.00	1,031.11	12.21	57.54	2.01	1,417.28	15.36	2,413.11	0.00
Scana Corp	SCG	3,185.00	54.47	115.00	1.97	2,547.69	43.57	5,847.69	100.00	3,185.00	39.87	115.00	1.44	4,687.75	58.69	7,987.75	100.00

Notes and Sources:
List of comparable companies from EXHIBIT NO.___(RGH-12).
All values listed are in millions of dollars.

[1]: See EXHIBIT NO.___(RGH-4). Data for Delta Natural Gas Inc, Energy West Inc, Energysouth Inc, and RGC Resources Inc are from company's 10-K.
[2]: = [1] / [7].
[3]: See EXHIBIT NO.___(RGH-4). Data for Delta Natural Gas Inc, Energy West Inc, Energysouth Inc, and RGC Resources Inc are from company's 10-K.
[4]: = [3] / [7].
[5]: See EXHIBIT NO.___(RGH-4) ([1] / [2]).
[6]: = [5] / [7].
[7]: = [1] + [3] + [5].
[8]: = [2] + [4] + [6].
[9]: See EXHIBIT NO.___(RGH-4), assumed to = [1].
[10]: = [9] / [15].
[11]: See EXHIBIT NO.___(RGH-4), assumed to = [3].
[12]: = [11] / [15].
[13]: See EXHIBIT NO.___(RGH-4).
[14]: = [13] / [15].
[15]: = [9] + [11] + [13].
[16]: = [10] + [12] + [14].

EXHIBIT NO.___(RGH-6)

SCE&G ESTIMATED COST OF CAPITAL
DCF APPROACH

				Bloomberg		Zacks		Value Line	
Comparable	Ticker	Annual Dividend	Last Price	Est Long Term Growth	Cost of Equity	EPS Growth Rate	Cost of Equity	EPS Growth	Cost of Equity
		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
AGL Resources Inc	ATG	$1.18	$34.74	4.20%	7.74%	5.00%	8.57%	3.82%	7.35%
Atmos Energy Corp	ATO	$1.23	$27.45	6.13%	10.88%	5.00%	9.70%	7.80%	12.63%
Cascade Natural Gas Corp	CGC	$0.96	$19.41	4.50%	9.67%	6.00%	11.24%	6.10%	11.35%
Chesapeake Utilities Corp	CPK	$1.12	$28.69	3.00%	7.02%	N/A	N/A	N/A	N/A
Delta Natural Gas Co Inc	DGAS	$1.18	$25.49	4.00%	8.81%	4.00%	8.81%	N/A	N/A
Energen Corp	EGN	$0.77	$61.06	6.50%	7.84%	7.00%	8.35%	8.72%	10.09%
Energy West Inc	EWST	$0.00	$8.34	N/A	N/A	N/A	N/A	N/A	N/A
Energysouth Inc	ENSI	$0.60	$26.68	N/A	N/A	N/A	N/A	N/A	N/A
Keyspan Corp	KSE	$1.79	$38.84	3.38%	8.14%	4.00%	8.79%	3.38%	8.14%
Laclede Group Inc	LG	$1.36	$29.19	5.00%	9.89%	5.00%	9.89%	4.33%	9.19%
National Fuel Gas Co	NFG	$1.12	$26.78	5.00%	9.39%	5.00%	9.39%	5.30%	9.70%
Nicor Inc	GAS	$1.86	$38.78	2.17%	7.07%	3.00%	7.94%	3.60%	8.57%
Northwest Natural Gas Co	NWN	$1.30	$36.03	5.75%	9.57%	5.00%	8.79%	6.09%	9.92%
Peoples Energy Corp	PGL	$2.17	$41.19	4.00%	9.48%	5.00%	10.53%	6.59%	12.21%
Piedmont Natural Gas Co	PNY	$0.86	$24.06	4.98%	8.73%	5.00%	8.75%	4.73%	8.47%
RGC Resources Inc	RGCO	$5.68	$26.42	N/A	N/A	N/A	N/A	N/A	N/A
Semco Energy Inc	SEN	$0.07	$5.24	4.00%	5.39%	N/A	N/A	35.59%	37.40%
South Jersey Industries Inc	SJI	$1.66	$55.63	5.50%	8.65%	6.00%	9.16%	5.16%	8.30%
Southern Union Co	SUG	N/A	$23.77	5.75%	N/A	6.00%	N/A	8.45%	N/A
Southwest Gas Corp	SWX	$0.82	$24.50	5.00%	8.51%	5.00%	8.51%	15.77%	19.65%
Vectren Corp	VVC	$1.17	$26.86	4.50%	9.05%	6.00%	10.62%	6.25%	10.88%
WGL Holdings Inc	WGL	$1.31	$31.86	4.00%	8.28%	4.00%	8.28%	5.60%	9.94%
Mean				4.60%	8.56%	5.06%	9.21%	8.08%	12.11%
Median				4.50%	8.69%	5.00%	8.80%	6.09%	9.93%
Standard Deviation				1.10%	1.27%	0.97%	0.95%	7.66%	7.33%
Scana Corp	SCG	$1.49	$41.30	4.50%	8.27%	5.00%	8.79%	4.01%	7.76%

Notes and Sources:
List of comparable companies from EXHIBIT NO.___(RGH-12).
The average and median are calculated only for companies which have a cost of equity value.
The cost of equity cannot be calculated for companies with $0.00 annual dividend.

[1]: See EXHIBIT NO.___(RGH-4).
[2]: See EXHIBIT NO.___(RGH-4).
[3]: Bloomberg estimated long term growth. See EXHIBIT NO.___(RGH-4).
[4]: = (([1] / [2]) * (1 + [3])) + [3].
[5]: Zacks Report earnings per share growth rate. See EXHIBIT NO.___(RGH-4).
[6]: = (([1] / [2]) * (1 + [5])) + [5].
[7]: = ((Value Line projected Long Term EPS / Current Year EPS) ^ (1 / n)) - 1, where n = number of forecasted years.
[8]: = (([1] / [2]) * (1 + [7])) + [7].

EXHIBIT NO.___(RGH-7)

SCANA CORP COMPARABLES ANALYSIS:
ESTIMATED COST OF CAPITAL
CAPM APPROACH

Comparable	Weekly Two-Year Adjusted Beta	Value Line Beta
[1]	[2]	[3]
Large Cap		
Keyspan Corp	0.76	0.80
AGL Resources Inc	0.80	0.80
Southern Union Co	1.05	0.95
National Fuel Gas Co	0.77	0.80
Energen Corp	1.01	0.70
Atmos Energy Corp	0.83	0.70
Vectren Corp	0.82	0.75
Piedmont Natural Gas Co	0.87	0.75
Nicor Inc	0.83	1.05
Peoples Energy Corp	0.87	0.80
WGL Holdings Inc	0.84	0.75
Small Cap		
Northwest Natural Gas Co	0.85	0.65
Southwest Gas Corp	0.89	0.75
South Jersey Industries Inc	0.83	0.55
Laclede Group Inc	1.03	0.75
Cascade Natural Gas Corp	0.86	0.75
Energysouth Inc	0.83	N/A
Chesapeake Utilities Corp	0.54	N/A
Semco Energy Inc	1.01	0.70
Delta Natural Gas Co Inc	0.40	N/A
RGC Resources Inc	-0.12	N/A
Energy West Inc	0.31	N/A
Scana Corp	0.74	0.75

EXHIBIT NO.___(RGH-7)

SCANA CORP COMPARABLES ANALYSIS:
ESTIMATED COST OF CAPITAL
CAPM APPROACH

	Comparable	Weekly Two-Year Adjusted Beta	Value Line Beta
	[1]	[2]	[3]
[4]	Mean		
	Small Cap	**0.68**	**0.69**
	Large Cap	0.86	0.80
	Small & Large Cap	0.77	0.76
[5]	Median		
	Small Cap	**0.83**	**0.73**
	Large Cap	0.83	0.80
	Small & Large Cap	0.83	0.75
[6]	Standard Deviation		
	Small Cap	**0.36**	**0.08**
	Large Cap	0.09	0.11
	Small & Large Cap	0.27	0.11
[7]	U.S. Treasury 20 Year Constant Maturity	4.52%	4.52%
[8]	Equity Risk Premium	7.20%	7.20%
[9]	Small Cap Premium	1.91%	1.91%
[10]	Cost of Equity (Using Median Adjusted Beta and Small Cap Sample)	12.41%	11.65%

EXHIBIT NO.___(RGH-7)

SCANA CORP COMPARABLES ANALYSIS: ESTIMATED COST OF CAPITAL CAPM APPROACH

Comparable	Weekly Two-Year Adjusted Beta	Value Line Beta
[1]	[2]	[3]

Notes and Sources:

Data are taken from Bloomberg, unless noted otherwise.

[1]: List of comparable companies from EXHIBIT NO.___(RGH-12).
Companies were sorted from largest to smallest market cap (see EXHIBIT NO.___(RGH-4) for market cap) and all those in the top half of the sample were categorized as "Large Cap" as the remaining half were categorized as "Small Cap."

[2]: See EXHIBIT NO.___(RGH-4).

[3]: See EXHIBIT NO.___(RGH-4).

[4]: Mean, not including Scana Corp.

[5]: Median, not including Scana Corp.

[6]: Standard Deviation, not including Scana Corp.

[7]: Taken from Federal Reserve Bank of St. Louis: Economic Research, *Economic Data - FRED® II > Categories > Interest Rates > Treasury Constant Maturity,* http://research.stlouisfed.org/fred2/series/DGS20/115 (Accessed 05/26/05).

[8]: See Ibbotson Associates, SBBI Valuation Edition 2005 Yearbook, pp. 184-5.

[9]: See EXHIBIT NO.___(RGH-8).

[10]: = [7] + [9] + ([5] * [8]) (Using Median Adjusted Beta and Small Cap Sample).

EXHIBIT NO.___(RGH-8)

SMALL CAP PREMIUM ANALYSIS

Date Range								
Begin	End	Adjusted Beta	R_f	Mean Small Portfolio Return	Mean S&P 500 Total Return	Small Portfolios Realized Return in Excess of Riskless Rate	Estimated Return in Excess of Riskless Rate	Size Premium (Return in Excess of CAPM)
		[1]	[2]	[3]	[4]	[5]	[6]	[7]
01/31/68	12/31/04	0.6144	8.06%	12.42%	12.05%	4.37%	2.45%	1.91%

Notes and Sources:

See Ibbotson Associates, *SBBI Valuation Edition 2005 Yearbook*, pp. 134-5 for methodology.

[1]: The historical beta is estimated from monthly small portfolio total returns in excess of the 30-day U.S. Treasury Bill total return versus the S&P 500 total returns in excess of the 30-day U.S. Treasury Bill, January 1968-December 2004. The Adjusted Beta = 0.33 + [0.67 * (Historical Beta)].

[2]: Mean Long-Term Government Bonds: Income Returns from January 1968 - December 2004. See Ibbotson Associates, *SBBI Valuation Edition 2005 Yearbook*, pp. 236-7.

[3]: Historical mean annual compounded portfolio return (January 1968-December 2004). See EXHIBIT NO.___(RGH-8A).

[4]: Mean Large Company Stocks: Total Returns from January 1968 - December 2004. See Ibbotson Associates, *SBBI Valuation Edition 2005 Yearbook*, pp. 224-5.

[5]: = [3] - [2].

[6]: = ([4] - [2]) * [1]. Calculated in the context of the CAPM by multiplying the equity risk premium by beta. The equity risk premium is estimated by the annual arithmetic mean total return of the S&P 500 (12.05 percent) minus the annual arithmetic mean income return component of the 20-year government bonds (8.06 percent) from January 1968 - December 2004.

[7]: = [5] - [6].

EXHIBIT NO.___(RGH-8A)

SMALL CAP PREMIUM ANALYSIS
(MONTHLY)

Month Ending	Small Portfolio Return (%)	R_f (%)	Small Portfolio Return - R_f (%)	S&P 500 Total Return (%)	S&P Total Return - R_f (%)
	[1]	[2]	[3]	[4]	[5]
01/31/68	10.62	0.40	10.22	-4.25	-4.65
02/29/68	-1.62	0.39	-2.01	-2.61	-3.00
03/29/68	-2.85	0.38	-3.23	1.10	0.72
04/30/68	2.13	0.43	1.70	8.34	7.91
05/31/68	-0.40	0.45	-0.85	1.61	1.16
06/28/68	11.98	0.43	11.55	1.05	0.62
07/30/68	1.97	0.48	1.49	-1.72	-2.20
08/30/68	-2.31	0.42	-2.73	1.64	1.22
09/30/68	1.12	0.43	0.69	4.00	3.57
10/31/68	3.72	0.44	3.28	0.87	0.43
11/29/68	2.60	0.42	2.18	5.31	4.89
12/31/68	-1.06	0.43	-1.49	-4.02	-4.45
01/31/69	2.34	0.53	1.81	-0.68	-1.21
02/28/69	-2.43	0.46	-2.89	-4.26	-4.72
03/28/69	-2.12	0.46	-2.58	3.59	3.13
04/30/69	-0.26	0.53	-0.79	2.29	1.76
05/29/69	-1.03	0.48	-1.51	0.26	-0.22
06/30/69	-5.87	0.51	-6.38	-5.42	-5.93
07/31/69	-4.33	0.53	-4.86	-5.87	-6.40
08/29/69	-0.71	0.50	-1.21	4.54	4.04
09/30/69	-0.23	0.62	-0.85	-2.36	-2.98
10/31/69	4.21	0.60	3.61	4.59	3.99
11/28/69	-0.44	0.52	-0.96	-2.97	-3.49
12/31/69	-4.44	0.64	-5.08	-1.77	-2.41
01/30/70	-1.34	0.60	-1.94	-7.43	-8.03
02/27/70	2.51	0.62	1.89	5.86	5.24
03/31/70	3.31	0.57	2.74	0.30	-0.27
04/30/70	-6.20	0.50	-6.70	-8.89	-9.39
05/29/70	-5.54	0.53	-6.07	-5.47	-6.00
06/30/70	-1.69	0.58	-2.27	-4.82	-5.40
07/31/70	1.66	0.52	1.14	7.52	7.00
08/31/70	3.08	0.53	2.55	5.09	4.56
09/30/70	3.00	0.54	2.46	3.47	2.93
10/30/70	-0.30	0.46	-0.76	-0.97	-1.43
11/30/70	1.85	0.46	1.39	5.36	4.90
12/31/70	8.10	0.42	7.68	5.84	5.42
01/29/71	6.99	0.38	6.61	4.19	3.81
02/26/71	-1.78	0.33	-2.11	1.41	1.08
03/31/71	1.28	0.30	0.98	3.82	3.52
04/30/71	-4.36	0.28	-4.64	3.77	3.49
05/28/71	-2.07	0.29	-2.36	-3.67	-3.96
06/30/71	-3.27	0.37	-3.64	0.21	-0.16
07/30/71	2.85	0.40	2.45	-3.99	-4.39
08/31/71	0.11	0.47	-0.36	4.12	3.65
09/30/71	-2.39	0.37	-2.76	-0.56	-0.93
10/29/71	0.06	0.37	-0.31	-4.04	-4.41
11/30/71	-1.21	0.37	-1.58	0.27	-0.10
12/31/71	4.30	0.37	3.93	8.77	8.40

EXHIBIT NO.___(RGH-8A)

SMALL CAP PREMIUM ANALYSIS
(MONTHLY)

Month Ending	Small Portfolio Return (%)	R_f (%)	Small Portfolio Return - R_f (%)	S&P 500 Total Return (%)	S&P Total Return - R_f (%)
	[1]	[2]	[3]	[4]	[5]
01/31/72	1.83	0.29	1.54	1.94	1.65
02/29/72	-1.71	0.25	-1.96	2.99	2.74
03/30/72	-1.00	0.27	-1.27	0.72	0.45
04/28/72	-2.12	0.29	-2.41	0.57	0.28
05/31/72	0.29	0.30	-0.01	2.19	1.89
06/30/72	-1.07	0.29	-1.36	-2.05	-2.34
07/31/72	-0.73	0.31	-1.04	0.36	0.05
08/31/72	5.05	0.29	4.76	3.91	3.62
09/29/72	-3.75	0.34	-4.09	-0.36	-0.70
10/31/72	4.97	0.40	4.57	1.07	0.67
11/30/72	3.51	0.37	3.14	5.05	4.68
12/29/72	-0.82	0.37	-1.19	1.31	0.94
01/31/73	3.22	0.44	2.78	-1.59	-2.03
02/28/73	-1.54	0.41	-1.95	-3.33	-3.74
03/30/73	0.04	0.46	-0.42	-0.02	-0.48
04/30/73	0.04	0.52	-0.48	-3.95	-4.47
05/31/73	-1.58	0.51	-2.09	-1.39	-1.90
06/29/73	-3.36	0.51	-3.87	-0.51	-1.02
07/31/73	-0.16	0.64	-0.80	3.94	3.30
08/31/73	-2.71	0.70	-3.41	-3.18	-3.88
09/28/73	2.96	0.68	2.28	4.15	3.47
10/31/73	-1.00	0.65	-1.65	0.03	-0.62
11/30/73	-8.78	0.56	-9.34	-10.82	-11.38
12/31/73	0.11	0.64	-0.53	1.83	1.19
01/31/74	6.26	0.63	5.63	-0.85	-1.48
02/28/74	-1.04	0.58	-1.62	0.19	-0.39
03/29/74	-0.60	0.56	-1.16	-2.17	-2.73
04/30/74	-6.39	0.75	-7.14	-3.73	-4.48
05/31/74	-7.23	0.75	-7.98	-2.72	-3.47
06/28/74	-4.07	0.60	-4.67	-1.28	-1.88
07/31/74	-1.22	0.70	-1.92	-7.59	-8.29
08/30/74	-7.98	0.60	-8.58	-8.28	-8.88
09/30/74	-4.83	0.81	-5.64	-11.70	-12.51
10/31/74	8.34	0.51	7.83	16.57	16.06
11/29/74	-3.49	0.54	-4.03	-4.48	-5.02
12/31/74	-1.32	0.70	-2.02	-1.77	-2.47
01/31/75	23.23	0.58	22.65	12.51	11.93
02/28/75	-0.08	0.43	-0.51	6.74	6.31
03/31/75	-1.57	0.41	-1.98	2.37	1.96
04/30/75	4.06	0.44	3.62	4.93	4.49
05/30/75	5.32	0.44	4.88	5.09	4.65
06/30/75	7.64	0.41	7.23	4.62	4.21
07/31/75	0.38	0.48	-0.10	-6.59	-7.07
08/29/75	-4.30	0.48	-4.78	-1.44	-1.92
09/30/75	-0.11	0.53	-0.64	-3.28	-3.81
10/31/75	0.82	0.56	0.26	6.37	5.81
11/28/75	2.24	0.41	1.83	3.13	2.72
12/31/75	-0.70	0.48	-1.18	-0.96	-1.44

EXHIBIT NO.___(RGH-8A)

SMALL CAP PREMIUM ANALYSIS
(MONTHLY)

Month Ending	Small Portfolio Return (%)	R_f (%)	Small Portfolio Return - R_f (%)	S&P 500 Total Return (%)	S&P Total Return - R_f (%)
	[1]	[2]	[3]	[4]	[5]
01/30/76	10.50	0.47	10.03	11.99	11.52
02/27/76	0.96	0.34	0.62	-0.58	-0.92
03/31/76	0.58	0.40	0.18	3.26	2.86
04/30/76	3.10	0.42	2.68	-0.99	-1.41
05/28/76	0.08	0.37	-0.29	-0.73	-1.10
06/30/76	-0.80	0.43	-1.23	4.27	3.84
07/30/76	5.04	0.47	4.57	-0.68	-1.15
08/31/76	1.77	0.42	1.35	0.14	-0.28
09/30/76	3.10	0.44	2.66	2.47	2.03
10/29/76	0.29	0.41	-0.12	-2.06	-2.47
11/30/76	2.10	0.40	1.70	-0.09	-0.49
12/31/76	7.22	0.40	6.82	5.40	5.00
01/31/77	5.31	0.36	4.95	-4.89	-5.25
02/28/77	-1.14	0.35	-1.49	-1.51	-1.86
03/31/77	-0.76	0.38	-1.14	-1.19	-1.57
04/29/77	-0.52	0.38	-0.90	0.14	-0.24
05/31/77	1.71	0.37	1.34	-1.50	-1.87
06/30/77	4.89	0.40	4.49	4.75	4.35
07/29/77	2.48	0.42	2.06	-1.51	-1.93
08/31/77	0.57	0.44	0.13	-1.33	-1.77
09/30/77	1.00	0.43	0.57	0.00	-0.43
10/31/77	-2.54	0.49	-3.03	-4.15	-4.64
11/30/77	0.89	0.50	0.39	3.70	3.20
12/30/77	1.41	0.49	0.92	0.48	-0.01
01/31/78	-4.13	0.49	-4.62	-5.96	-6.45
02/28/78	2.47	0.46	2.01	-1.61	-2.07
03/31/78	2.50	0.53	1.97	2.76	2.23
04/28/78	0.58	0.54	0.04	8.70	8.16
05/31/78	-2.39	0.51	-2.90	1.36	0.85
06/30/78	1.50	0.54	0.96	-1.52	-2.06
07/31/78	2.63	0.56	2.07	5.60	5.04
08/31/78	1.87	0.55	1.32	3.40	2.85
09/29/78	1.14	0.62	0.52	-0.48	-1.10
10/31/78	-9.70	0.68	-10.38	-8.91	-9.59
11/30/78	1.30	0.70	0.60	2.60	1.90
12/29/78	-0.18	0.78	-0.96	1.72	0.94
01/31/79	6.44	0.77	5.67	4.21	3.44
02/28/79	0.28	0.73	-0.45	-2.84	-3.57
03/30/79	2.32	0.81	1.51	5.75	4.94
04/30/79	1.10	0.80	0.30	0.36	-0.44
05/31/79	1.58	0.82	0.76	-1.68	-2.50
06/29/79	8.09	0.81	7.28	4.10	3.29
07/31/79	5.70	0.77	4.93	1.10	0.33
08/31/79	2.46	0.77	1.69	6.11	5.34
09/28/79	3.22	0.83	2.39	0.25	-0.58
10/31/79	-8.76	0.87	-9.63	-6.56	-7.43
11/30/79	3.44	0.99	2.45	5.14	4.15
12/31/79	2.34	0.95	1.39	1.92	0.97

EXHIBIT NO.___(RGH-8A)

SMALL CAP PREMIUM ANALYSIS
(MONTHLY)

Month Ending	Small Portfolio Return (%)	R_f (%)	Small Portfolio Return - R_f (%)	S&P 500 Total Return (%)	S&P Total Return - R_f (%)
	[1]	[2]	[3]	[4]	[5]
01/31/80	0.03	0.80	-0.77	6.10	5.30
02/29/80	-4.66	0.89	-5.55	0.31	-0.58
03/31/80	-12.84	1.21	-14.05	-9.87	-11.08
04/30/80	10.81	1.26	9.55	4.29	3.03
05/30/80	1.83	0.81	1.02	5.62	4.81
06/30/80	7.47	0.61	6.86	2.96	2.35
07/31/80	3.47	0.53	2.94	6.76	6.23
08/29/80	0.63	0.64	-0.01	1.31	0.67
09/30/80	-0.64	0.75	-1.39	2.81	2.06
10/31/80	-0.71	0.95	-1.66	1.87	0.92
11/28/80	-1.90	0.96	-2.86	10.95	9.99
12/31/80	-2.37	1.31	-3.68	-3.15	-4.46
01/30/81	1.73	1.04	0.69	-4.38	-5.42
02/27/81	-1.54	1.07	-2.61	2.08	1.01
03/31/81	1.13	1.21	-0.08	3.80	2.59
04/30/81	-0.74	1.08	-1.82	-2.13	-3.21
05/29/81	1.61	1.15	0.46	0.62	-0.53
06/30/81	0.18	1.35	-1.17	-0.80	-2.15
07/31/81	1.44	1.24	0.20	0.07	-1.17
08/31/81	-0.17	1.28	-1.45	-5.54	-6.82
09/30/81	-6.23	1.24	-7.47	-5.02	-6.26
10/30/81	3.26	1.21	2.05	5.28	4.07
11/30/81	11.67	1.07	10.60	4.41	3.34
12/31/81	-3.72	0.87	-4.59	-2.65	-3.52
01/29/82	0.65	0.80	-0.15	-1.63	-2.43
02/26/82	0.54	0.92	-0.38	-5.12	-6.04
03/31/82	1.12	0.98	0.14	-0.60	-1.58
04/30/82	2.59	1.13	1.46	4.14	3.01
05/28/82	1.16	1.06	0.10	-2.88	-3.94
06/30/82	0.02	0.96	-0.94	-1.74	-2.70
07/30/82	-0.75	1.05	-1.80	-2.15	-3.20
08/31/82	6.31	0.76	5.55	12.67	11.91
09/30/82	3.21	0.51	2.70	1.10	0.59
10/29/82	4.93	0.59	4.34	11.26	10.67
11/30/82	3.56	0.63	2.93	4.38	3.75
12/31/82	-0.42	0.67	-1.09	1.73	1.06
01/31/83	4.03	0.69	3.34	3.48	2.79
02/28/83	2.36	0.62	1.74	2.60	1.98
03/31/83	2.64	0.63	2.01	3.65	3.02
04/29/83	-2.10	0.71	-2.81	7.58	6.87
05/31/83	0.87	0.69	0.18	-0.52	-1.21
06/30/83	1.81	0.67	1.14	3.82	3.15
07/29/83	-1.15	0.74	-1.89	-3.13	-3.87
08/31/83	3.16	0.76	2.40	1.70	0.94
09/30/83	2.26	0.76	1.50	1.36	0.60
10/31/83	2.70	0.76	1.94	-1.34	-2.10
11/30/83	0.79	0.70	0.09	2.33	1.63
12/30/83	1.95	0.73	1.22	-0.61	-1.34

EXHIBIT NO.___(RGH-8A)

SMALL CAP PREMIUM ANALYSIS
(MONTHLY)

Month Ending	Small Portfolio Return (%)	R_f (%)	Small Portfolio Return - R_f (%)	S&P 500 Total Return (%)	S&P Total Return - R_f (%)
	[1]	[2]	[3]	[4]	[5]
01/31/84	2.11	0.76	1.35	-0.65	-1.41
02/29/84	-0.64	0.71	-1.35	-3.28	-3.99
03/30/84	3.28	0.73	2.55	1.71	0.98
04/30/84	0.86	0.81	0.05	0.69	-0.12
05/31/84	3.01	0.78	2.23	-5.34	-6.12
06/29/84	2.45	0.75	1.70	2.21	1.46
07/31/84	0.53	0.82	-0.29	-1.43	-2.25
08/31/84	4.21	0.83	3.38	11.25	10.42
09/28/84	4.72	0.86	3.86	0.02	-0.84
10/31/84	2.98	1.00	1.98	0.26	-0.74
11/30/84	4.69	0.73	3.96	-1.01	-1.74
12/31/84	4.16	0.64	3.52	2.53	1.89
01/31/85	0.00	0.65	-0.65	7.68	7.03
02/28/85	0.35	0.58	-0.23	1.37	0.79
03/29/85	4.68	0.62	4.06	0.18	-0.44
04/30/85	0.95	0.72	0.23	-0.32	-1.04
05/31/85	4.26	0.66	3.60	6.15	5.49
06/28/85	2.49	0.55	1.94	1.59	1.04
07/31/85	-1.14	0.62	-1.76	-0.26	-0.88
08/30/85	0.61	0.55	0.06	-0.61	-1.16
09/30/85	-0.83	0.60	-1.43	-3.21	-3.81
10/31/85	2.85	0.65	2.20	4.47	3.82
11/29/85	2.68	0.61	2.07	7.16	6.55
12/31/85	2.77	0.65	2.12	4.67	4.02
01/31/86	3.12	0.56	2.56	0.44	-0.12
02/28/86	3.78	0.53	3.25	7.61	7.08
03/31/86	3.50	0.60	2.90	5.54	4.94
04/30/86	0.24	0.52	-0.28	-1.24	-1.76
05/30/86	2.10	0.49	1.61	5.49	5.00
06/30/86	6.60	0.52	6.08	1.66	1.14
07/31/86	2.76	0.52	2.24	-5.69	-6.21
08/29/86	5.37	0.46	4.91	7.48	7.02
09/30/86	-4.38	0.45	-4.83	-8.22	-8.67
10/31/86	1.01	0.46	0.55	5.56	5.10
11/28/86	0.38	0.39	-0.01	2.56	2.17
12/31/86	-4.36	0.49	-4.85	-2.64	-3.13
01/30/87	6.70	0.42	6.28	13.43	13.01
02/27/87	4.02	0.43	3.59	4.13	3.70
03/31/87	1.95	0.47	1.48	2.72	2.25
04/30/87	-2.27	0.44	-2.71	-0.88	-1.32
05/29/87	-1.45	0.38	-1.83	1.03	0.65
06/30/87	3.33	0.48	2.85	4.99	4.51
07/31/87	-1.25	0.46	-1.71	4.98	4.52
08/31/87	1.11	0.47	0.64	3.85	3.38
09/30/87	-4.63	0.45	-5.08	-2.20	-2.65
10/30/87	-17.52	0.60	-18.12	-21.52	-22.12
11/30/87	-0.49	0.35	-0.84	-8.19	-8.54
12/31/87	0.37	0.39	-0.02	7.38	6.99

EXHIBIT NO.___(RGH-8A)

SMALL CAP PREMIUM ANALYSIS
(MONTHLY)

Month Ending	Small Portfolio Return (%)	R_f (%)	Small Portfolio Return - R_f (%)	S&P 500 Total Return (%)	S&P Total Return - R_f (%)
	[1]	[2]	[3]	[4]	[5]
01/29/88	4.86	0.29	4.57	4.27	3.98
02/29/88	4.51	0.46	4.05	4.70	4.24
03/31/88	0.14	0.44	-0.30	-3.02	-3.46
04/29/88	-0.31	0.46	-0.77	1.08	0.62
05/31/88	1.62	0.51	1.11	0.78	0.27
06/30/88	3.52	0.49	3.03	4.64	4.15
07/29/88	2.33	0.51	1.82	-0.40	-0.91
08/31/88	-1.51	0.59	-2.10	-3.31	-3.90
09/30/88	1.64	0.62	1.02	4.24	3.62
10/31/88	0.16	0.61	-0.45	2.73	2.12
11/30/88	-1.08	0.57	-1.65	-1.42	-1.99
12/30/88	2.24	0.63	1.61	1.81	1.18
01/31/89	1.03	0.55	0.48	7.23	6.68
02/28/89	-0.96	0.61	-1.57	-2.49	-3.10
03/31/89	1.38	0.67	0.71	2.36	1.69
04/28/89	2.80	0.67	2.13	5.16	4.49
05/31/89	1.96	0.79	1.17	4.02	3.23
06/30/89	1.71	0.71	1.00	-0.54	-1.25
07/31/89	4.13	0.70	3.43	8.98	8.28
08/31/89	0.22	0.74	-0.52	1.93	1.19
09/29/89	1.08	0.65	0.43	-0.39	-1.04
10/31/89	-1.17	0.68	-1.85	-2.33	-3.01
11/30/89	1.82	0.69	1.13	2.08	1.39
12/29/89	2.51	0.61	1.90	2.36	1.75
01/31/90	-2.43	0.57	-3.00	-6.71	-7.28
02/28/90	1.03	0.57	0.46	1.29	0.72
03/30/90	1.29	0.64	0.65	2.63	1.99
04/30/90	-4.52	0.69	-5.21	-2.47	-3.16
05/31/90	2.01	0.68	1.33	9.75	9.07
06/29/90	-0.60	0.63	-1.23	-0.70	-1.33
07/31/90	1.19	0.68	0.51	-0.32	-1.00
08/31/90	-4.60	0.66	-5.26	-9.03	-9.69
09/28/90	0.92	0.60	0.32	-4.92	-5.52
10/31/90	-1.58	0.68	-2.26	-0.37	-1.05
11/30/90	2.76	0.57	2.19	6.44	5.87
12/31/90	2.89	0.60	2.29	2.74	2.14
01/31/91	-1.95	0.52	-2.47	4.42	3.90
02/28/91	2.59	0.48	2.11	7.16	6.68
03/28/91	0.36	0.44	-0.08	2.38	1.94
04/30/91	1.10	0.53	0.57	0.28	-0.25
05/31/91	4.82	0.47	4.35	4.28	3.81
06/28/91	-1.95	0.42	-2.37	-4.57	-4.99
07/31/91	3.94	0.49	3.45	4.68	4.19
08/30/91	1.22	0.46	0.76	2.35	1.89
09/30/91	2.47	0.46	2.01	-1.64	-2.10
10/31/91	2.76	0.42	2.34	1.34	0.92
11/29/91	1.70	0.39	1.31	-4.04	-4.43
12/31/91	1.64	0.38	1.26	11.43	11.05

EXHIBIT NO.___(RGH-8A)

SMALL CAP PREMIUM ANALYSIS
(MONTHLY)

Month Ending	Small Portfolio Return (%)	R_f (%)	Small Portfolio Return - R_f (%)	S&P 500 Total Return (%)	S&P Total Return - R_f (%)
	[1]	[2]	[3]	[4]	[5]
01/31/92	-1.63	0.34	-1.97	-1.86	-2.20
02/28/92	0.05	0.28	-0.23	1.28	1.00
03/31/92	1.00	0.34	0.66	-1.96	-2.30
04/30/92	-0.27	0.32	-0.59	2.91	2.59
05/29/92	2.43	0.28	2.15	0.54	0.26
06/30/92	1.33	0.32	1.01	-1.45	-1.77
07/31/92	7.88	0.31	7.57	4.03	3.72
08/31/92	3.26	0.26	3.00	-2.02	-2.28
09/30/92	0.35	0.26	0.09	1.15	0.89
10/30/92	1.15	0.23	0.92	0.36	0.13
11/30/92	1.49	0.23	1.26	3.37	3.14
12/31/92	3.22	0.28	2.94	1.31	1.03
01/29/93	3.08	0.23	2.85	0.73	0.50
02/26/93	3.20	0.22	2.98	1.35	1.13
03/31/93	3.05	0.25	2.80	2.15	1.90
04/30/93	1.72	0.24	1.48	-2.45	-2.69
05/28/93	1.42	0.22	1.20	2.70	2.48
06/30/93	2.08	0.25	1.83	0.33	0.08
07/30/93	4.03	0.24	3.79	-0.47	-0.71
08/31/93	1.91	0.25	1.66	3.81	3.56
09/30/93	1.55	0.26	1.29	-0.74	-1.00
10/29/93	1.96	0.22	1.74	2.03	1.81
11/30/93	-6.01	0.25	-6.26	-0.94	-1.19
12/31/93	-1.05	0.23	-1.28	1.23	1.00
01/31/94	1.01	0.25	0.76	3.35	3.10
02/28/94	-1.30	0.21	-1.51	-2.70	-2.91
03/31/94	-6.51	0.27	-6.78	-4.35	-4.62
04/29/94	-0.56	0.27	-0.83	1.30	1.03
05/31/94	-1.05	0.32	-1.37	1.63	1.31
06/30/94	1.31	0.31	1.00	-2.47	-2.78
07/29/94	-0.43	0.28	-0.71	3.31	3.03
08/31/94	1.93	0.37	1.56	4.07	3.70
09/30/94	-0.89	0.37	-1.26	-2.41	-2.78
10/31/94	-2.58	0.38	-2.96	2.29	1.91
11/30/94	-3.33	0.37	-3.70	-3.67	-4.04
12/30/94	0.57	0.44	0.13	1.46	1.02
01/31/95	-0.10	0.42	-0.52	2.60	2.18
02/28/95	2.88	0.40	2.48	3.88	3.48
03/31/95	0.48	0.46	0.02	2.96	2.50
04/28/95	-0.54	0.44	-0.98	2.91	2.47
05/31/95	1.58	0.54	1.04	3.95	3.41
06/30/95	1.48	0.47	1.01	2.35	1.88
07/31/95	-0.79	0.45	-1.24	3.33	2.88
08/31/95	0.67	0.47	0.20	0.27	-0.20
09/29/95	3.04	0.43	2.61	4.19	3.76
10/31/95	1.36	0.47	0.89	-0.35	-0.82
11/30/95	6.01	0.42	5.59	4.40	3.98
12/29/95	4.57	0.49	4.08	1.85	1.36

EXHIBIT NO.___(RGH-8A)

SMALL CAP PREMIUM ANALYSIS
(MONTHLY)

Month Ending	Small Portfolio Return (%)	R_f (%)	Small Portfolio Return - R_f (%)	S&P 500 Total Return (%)	S&P Total Return - R_f (%)
	[1]	[2]	[3]	[4]	[5]
01/31/96	-1.19	0.43	-1.62	3.44	3.01
02/29/96	-0.51	0.39	-0.90	0.96	0.57
03/29/96	-0.06	0.39	-0.45	0.96	0.57
04/30/96	0.71	0.46	0.25	1.47	1.01
05/31/96	0.28	0.42	-0.14	2.58	2.16
06/28/96	-1.25	0.40	-1.65	0.41	0.01
07/31/96	1.92	0.45	1.47	-4.45	-4.90
08/30/96	5.46	0.41	5.05	2.12	1.71
09/30/96	3.11	0.44	2.67	5.62	5.18
10/31/96	-0.36	0.42	-0.78	2.74	2.32
11/29/96	4.08	0.41	3.67	7.59	7.18
12/31/96	2.04	0.46	1.58	-1.96	-2.42
01/31/97	1.14	0.45	0.69	6.21	5.76
02/28/97	-0.72	0.39	-1.11	0.81	0.42
03/31/97	-2.33	0.43	-2.76	-4.16	-4.59
04/30/97	-0.96	0.43	-1.39	5.97	5.54
05/30/97	3.64	0.49	3.15	6.14	5.65
06/30/97	3.04	0.37	2.67	4.46	4.09
07/31/97	0.77	0.43	0.34	7.94	7.51
08/29/97	3.47	0.41	3.06	-5.56	-5.97
09/30/97	4.28	0.44	3.84	5.48	5.04
10/31/97	-1.82	0.42	-2.24	-3.34	-3.76
11/28/97	2.33	0.39	1.94	4.63	4.24
12/31/97	12.32	0.48	11.84	1.72	1.24
01/30/98	-4.82	0.43	-5.25	1.11	0.68
02/27/98	0.57	0.39	0.18	7.21	6.82
03/31/98	1.38	0.39	0.99	5.12	4.73
04/30/98	-3.13	0.43	-3.56	1.01	0.58
05/29/98	0.18	0.40	-0.22	-1.72	-2.12
06/30/98	1.46	0.41	1.05	4.06	3.65
07/31/98	-4.67	0.40	-5.07	-1.07	-1.47
08/31/98	-4.55	0.43	-4.98	-14.46	-14.89
09/30/98	7.19	0.46	6.73	6.41	5.95
10/30/98	6.55	0.32	6.23	8.13	7.81
11/30/98	1.11	0.31	0.80	6.06	5.75
12/31/98	3.87	0.38	3.49	5.76	5.38
01/29/99	-7.55	0.35	-7.90	4.18	3.83
02/26/99	-2.62	0.35	-2.97	-3.11	-3.46
03/31/99	-5.02	0.43	-5.45	4.00	3.57
04/30/99	8.98	0.37	8.61	3.87	3.50
05/28/99	7.02	0.34	6.68	-2.36	-2.70
06/30/99	11.80	0.40	11.40	5.55	5.15
07/30/99	4.21	0.38	3.83	-3.12	-3.50
08/31/99	-3.16	0.39	-3.55	-0.50	-0.89
09/30/99	0.55	0.39	0.16	-2.74	-3.13
10/29/99	0.16	0.39	-0.23	6.33	5.94
11/30/99	6.40	0.36	6.04	2.03	1.67
12/31/99	-0.71	0.44	-1.15	5.89	5.45

EXHIBIT NO.___(RGH-8A)

SMALL CAP PREMIUM ANALYSIS
(MONTHLY)

Month Ending	Small Portfolio Return (%)	R_f (%)	Small Portfolio Return - R_f (%)	S&P 500 Total Return (%)	S&P Total Return - R_f (%)
	[1]	[2]	[3]	[4]	[5]
01/31/00	-2.97	0.41	-3.38	-5.02	-5.43
02/29/00	-2.51	0.43	-2.94	-1.89	-2.32
03/31/00	5.57	0.47	5.10	9.78	9.31
04/28/00	1.24	0.46	0.78	-3.01	-3.47
05/31/00	0.29	0.50	-0.21	-2.05	-2.55
06/30/00	-0.58	0.40	-0.98	2.46	2.06
07/31/00	4.85	0.48	4.37	-1.56	-2.04
08/31/00	2.60	0.50	2.10	6.21	5.71
09/29/00	2.30	0.51	1.79	-5.28	-5.79
10/31/00	1.45	0.56	0.89	-0.42	-0.98
11/30/00	0.58	0.51	0.07	-7.88	-8.39
12/29/00	6.83	0.50	6.33	0.49	-0.01
01/31/01	-8.76	0.54	-9.30	3.55	3.01
02/28/01	5.15	0.38	4.77	-9.12	-9.50
03/30/01	-1.60	0.42	-2.02	-6.34	-6.76
04/30/01	-2.84	0.39	-3.23	7.77	7.38
05/31/01	0.99	0.32	0.67	0.67	0.35
06/29/01	5.72	0.28	5.44	-2.43	-2.71
07/31/01	-3.27	0.30	-3.57	-0.98	-1.28
08/31/01	3.41	0.31	3.10	-6.26	-6.57
09/28/01	-3.65	0.28	-3.93	-8.08	-8.36
10/31/01	-1.49	0.22	-1.71	1.91	1.69
11/30/01	3.32	0.17	3.15	7.67	7.50
12/31/01	1.89	0.15	1.74	0.88	0.73
01/31/02	-1.89	0.14	-2.03	-1.46	-1.60
02/28/02	-2.40	0.13	-2.53	-1.93	-2.06
03/28/02	7.23	0.13	7.10	3.76	3.63
04/30/02	5.55	0.15	5.40	-6.06	-6.21
05/31/02	-0.92	0.14	-1.06	-0.74	-0.88
06/28/02	-0.77	0.13	-0.90	-7.12	-7.25
07/31/02	-7.75	0.15	-7.90	-7.80	-7.95
08/30/02	3.02	0.14	2.88	0.66	0.52
09/30/02	0.52	0.14	0.38	-10.87	-11.01
10/31/02	-5.78	0.14	-5.92	8.80	8.66
11/29/02	-2.16	0.12	-2.28	5.89	5.77
12/31/02	3.72	0.11	3.61	-5.88	-5.99
01/31/03	-3.58	0.10	-3.68	-2.62	-2.72
02/28/03	-3.57	0.09	-3.66	-1.50	-1.59
03/31/03	0.77	0.10	0.67	0.97	0.87
04/30/03	5.43	0.10	5.33	8.24	8.14
05/30/03	9.14	0.09	9.05	5.27	5.18
06/30/03	-1.15	0.10	-1.25	1.28	1.18
07/31/03	3.01	0.07	2.94	1.76	1.69
08/29/03	-0.40	0.07	-0.47	1.95	1.88
09/30/03	0.11	0.08	0.03	-1.06	-1.14
10/31/03	4.23	0.07	4.16	5.66	5.59
11/28/03	2.67	0.07	2.60	0.88	0.81
12/31/03	1.70	0.08	1.62	5.24	5.16

EXHIBIT NO.___(RGH-8A)

SMALL CAP PREMIUM ANALYSIS
(MONTHLY)

Month Ending	Small Portfolio Return (%)	R_f (%)	Small Portfolio Return - R_f (%)	S&P 500 Total Return (%)	S&P Total Return - R_f (%)
	[1]	[2]	[3]	[4]	[5]
01/30/04	2.46	0.07	2.39	1.84	1.77
02/27/04	2.28	0.06	2.22	1.39	1.33
03/31/04	-1.28	0.09	-1.37	-1.51	-1.60
04/30/04	-2.97	0.08	-3.05	-1.57	-1.65
05/28/04	0.58	0.06	0.52	1.37	1.31
06/30/04	5.41	0.08	5.33	1.94	1.86
07/30/04	-1.34	0.10	-1.44	-3.31	-3.41
08/31/04	2.58	0.11	2.47	0.40	0.29
09/30/04	3.49	0.11	3.38	1.08	0.97
10/29/04	0.07	0.11	-0.04	1.53	1.42
11/30/04	6.62	0.15	6.47	4.05	3.90
12/31/04	0.67	0.16	0.51	3.40	3.24

Notes and Sources:

List of companies compiled by searching CRSP and Compustat databases for all current securities under SIC code 4924. Companies returned that were subsidiaries of larger entities were excluded.

[1]: Each year has a minimum of 10 companies. On a calendar year-end basis, companies are ranked by market capitalization from largest to smallest. Each industry is split into a "large" and a "small" portfolio with an equal number of companies in each. This column contains the returns of the "small" portfolios.

[2]: U.S. Treasury Bills: Total Returns. Data taken from Ibbotson Associates, *SBBI Valuation Edition 2005 Yearbook, pp. 250-1.*

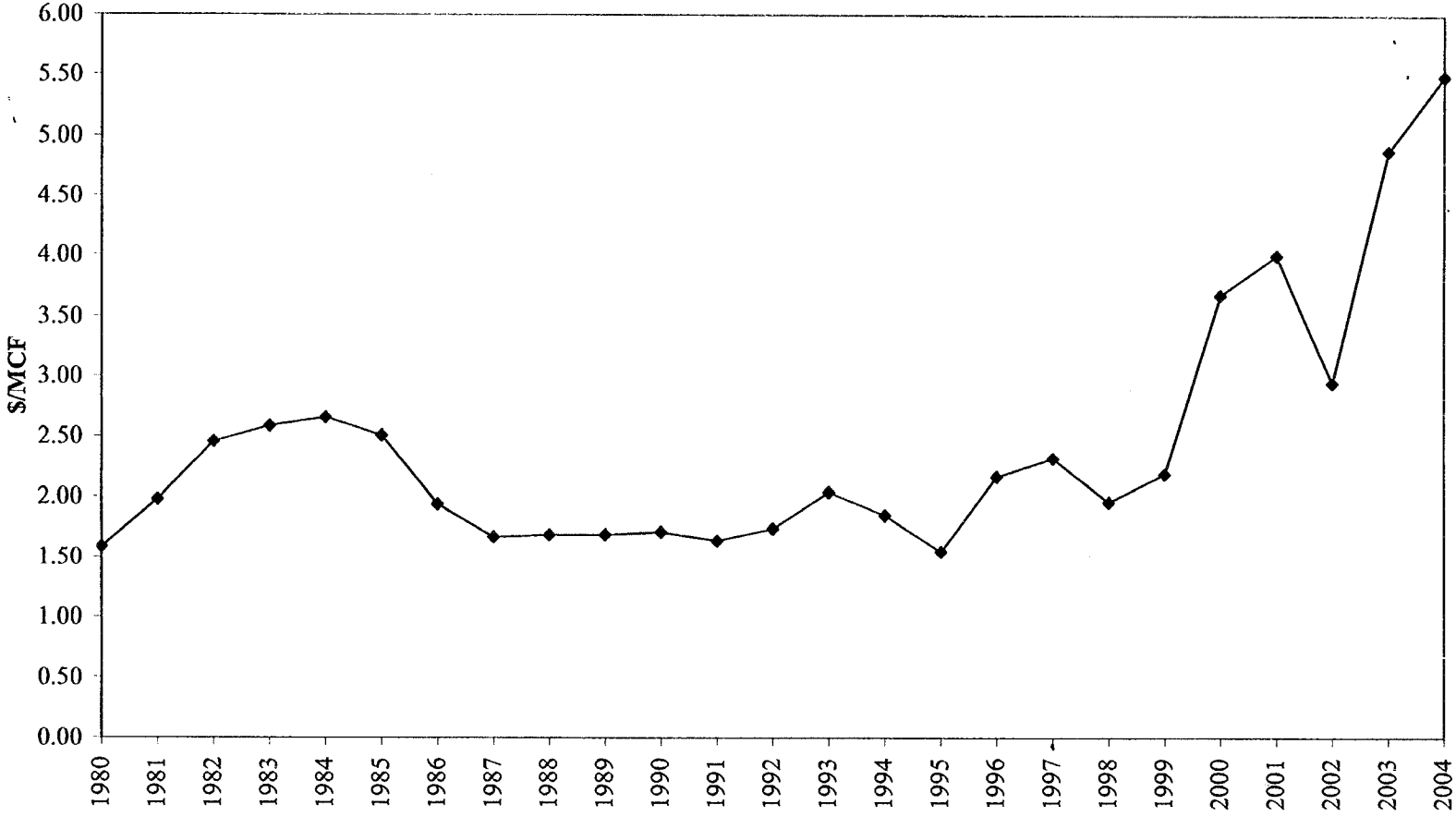
[3]: = [1] - [2].

[4]: Large Company Stocks: Total Returns. Data taken from Ibbotson Associates, *SBBI Valuation Edition 2005 Yearbook, pp. 224-5.*

[5]: = [4] - [2].

EXHIBIT NO.___(RGH-9)

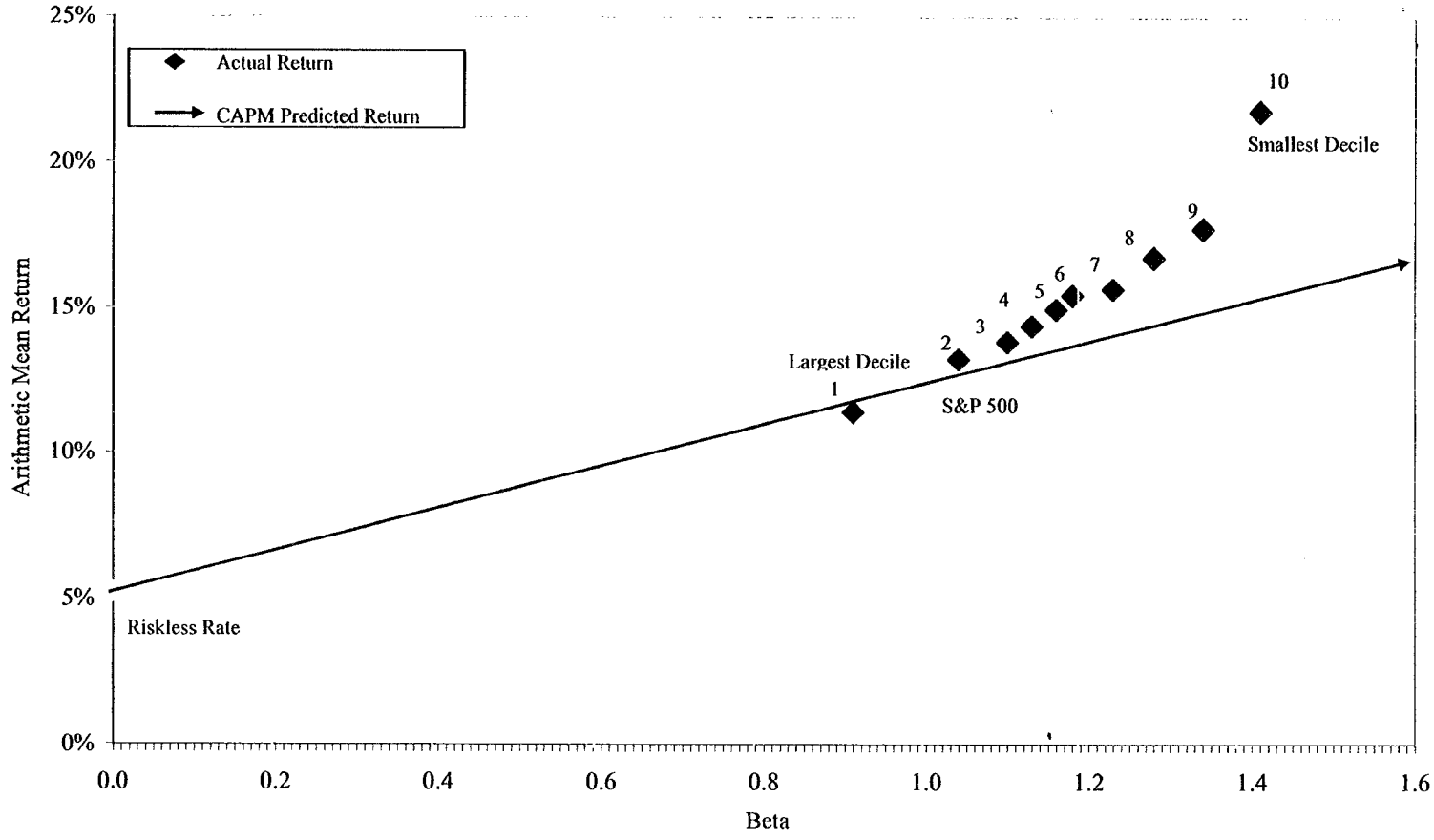
U.S. WELLHEAD NATURAL GAS PRICE



Notes and Sources:
Data are taken from U.S. Department of Energy, Energy Information Administration.

EXHIBIT NO.___(RGH-10)

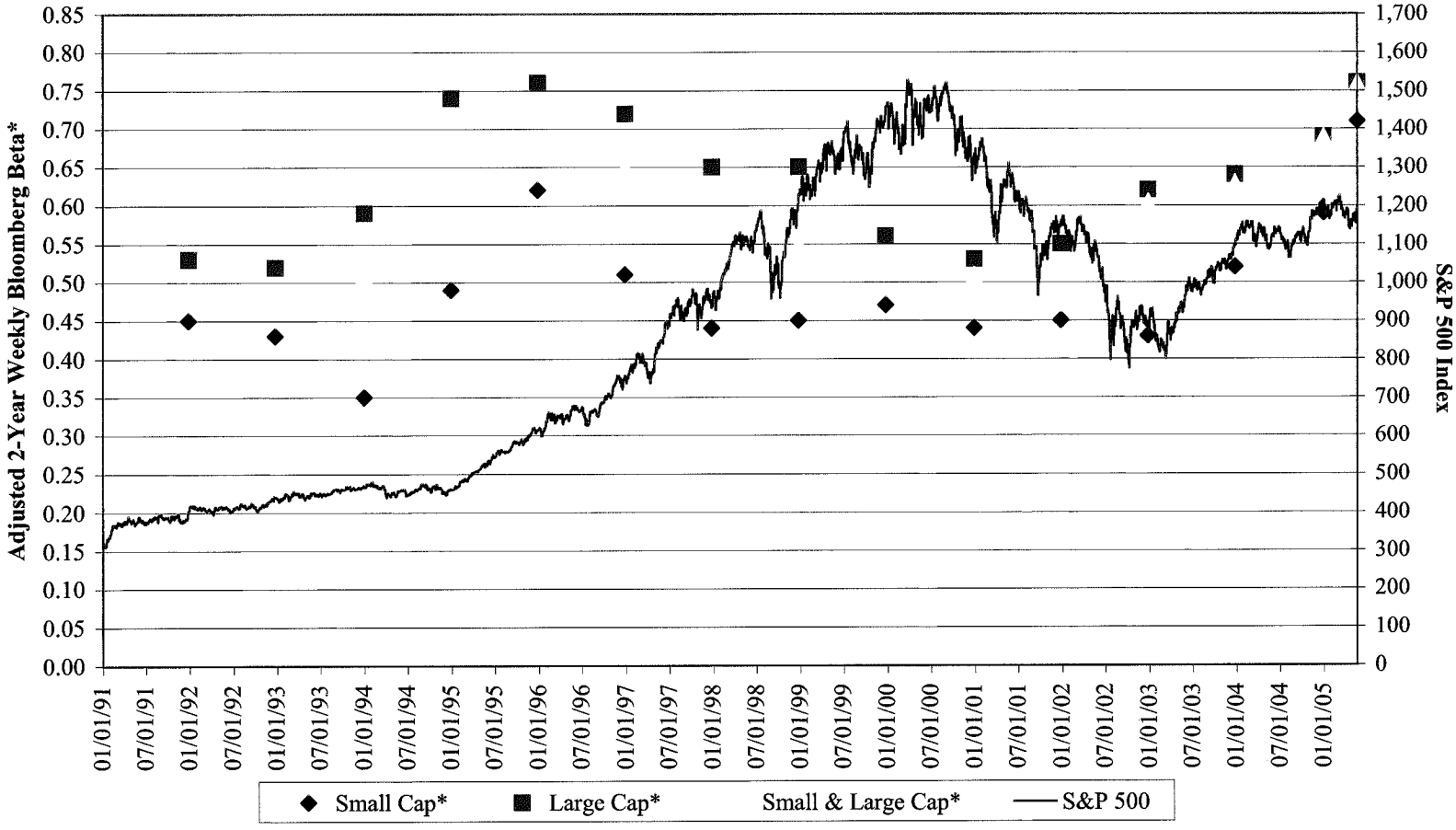
SECURITY MARKET LINE VS. SIZE-DECILE PORTFOLIOS OF THE NYSE/AMEX/NASDAQ (1926-2004)



Notes and Sources:
The data are taken from Ibbotson Associates, *SBBI Valuation Edition 2005 Yearbook*, p.135.

EXHIBIT NO.___(RGH-11A)

BLOOMBERG BETA ANALYSIS
NATURAL GAS DISTRIBUTION FIRMS



Notes and Sources:
From EXHIBIT NO.___(RGH-11B).

* Represents median of 9 Small Cap, 9 Large Cap, and 18 total natural gas distribution companies (9 + 9).

EXHIBIT NO.___(RGH-11B)

BLOOMBERG BETA ANALYSIS
SCE&G COMPARABLES

		Weekly Two Year Adjusted Beta														
		1989-1991	1990-1992	1991-1993	1992-1994	1993-1995	1994-1996	1995-1997	1996-1998	1997-1999	1998-2000	1999-2001	2000-2002	2001-2003	2002-2004	2003-2005
		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
Large Cap																
AGL Resources Inc	ATG	0.58	0.56	0.57	0.61	0.72	0.70	0.65	0.65	0.56	0.53	0.53	0.62	0.66	0.71	0.72
Southern Union Co	SUG	0.79	0.83	0.77	0.69	0.95	0.81	0.78	0.60	0.62	0.62	0.78	0.87	0.91	0.91	0.84
National Fuel Gas Co	NFG	0.52	0.51	0.64	0.95	0.81	0.69	0.57	0.56	0.50	0.48	0.49	0.56	0.62	0.69	0.71
Energen Corp	EGN	0.44	0.52	0.54	0.68	0.63	0.72	0.57	0.69	0.66	0.75	0.69	0.66	0.56	0.61	0.78
Atmos Energy Corp	ATO	0.44	0.49	0.59	0.74	0.76	0.71	0.46	0.49	0.46	0.59	0.62	0.67	0.65	0.69	0.77
Piedmont Natural Gas Co	PNY	0.50	0.46	0.52	0.74	0.76	0.59	0.52	0.54	0.54	0.52	0.56	0.60	0.64	0.69	0.76
Nicor Inc	GAS	0.72	0.64	0.62	0.81	0.76	0.88	0.69	0.66	0.56	0.53	0.48	0.73	0.87	1.12	0.93
Peoples Energy Corp	PGL	0.70	0.78	0.79	1.03	0.90	0.85	0.78	0.75	0.67	0.57	0.55	0.59	0.63	0.73	0.76
WGL Holdings Inc	WGL	0.53	0.48	0.52	0.74	0.76	0.72	0.66	0.65	0.56	0.53	0.54	0.61	0.63	0.68	0.70
Small Cap																
Southwest Gas Corp	SWX	0.57	0.51	0.50	0.49	0.65	0.64	0.51	0.61	0.59	0.67	0.71	0.74	0.72	0.69	0.77
South Jersey Industries Inc	SJI	0.48	0.44	0.48	0.56	0.62	0.50	0.45	0.47	0.54	0.44	0.45	0.43	0.52	0.59	0.71
Laclede Group Inc	LG	0.47	0.43	0.34	0.63	0.66	0.66	0.59	0.57	0.53	0.50	0.51	0.57	0.63	0.74	0.90
Cascade Natural Gas Corp	CGC	0.60	0.47	0.48	0.53	0.65	0.61	0.45	0.38	0.37	0.48	0.58	0.65	0.66	0.73	0.79
Energysouth Inc	ENSI	0.32	0.26	0.35	0.35	0.44	0.35	0.35	0.45	0.50	0.47	0.38	0.39	0.43	0.56	0.67
Chesapeake Utilities Corp	CPK	0.40	0.38	0.11	0.20	0.48	0.51	0.43	0.38	0.35	0.34	0.32	0.34	0.38	0.48	0.48
Semco Energy Inc	SEN	0.39	0.40	0.31	0.39	0.41	0.48	0.44	0.46	0.47	0.42	0.49	0.63	0.82	0.95	1.05
Delta Natural Gas Co Inc	DGAS	0.45	0.52	0.45	0.59	0.55	0.43	0.37	0.44	0.43	0.39	0.35	0.35	0.34	0.33	0.36
Energy West Inc	EWST	0.31	0.26	0.13	0.30	0.67	0.59	0.43	0.32	0.35	0.37	0.39	0.42	0.42	0.44	0.29
Keyspan Corp	KSE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.45	0.58	0.64	0.75	0.69
Vectren Corp	VVC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.65	0.80	0.79
RGC Resources Inc	RGCO	N/A	N/A	N/A	N/A	N/A	N/A	0.12	0.35	0.53	0.44	0.43	0.31	0.41	0.24	0.05
Mean																
Small Cap		**0.44**	**0.41**	**0.35**	**0.45**	**0.57**	**0.53**	**0.45**	**0.45**	**0.46**	**0.45**	**0.46**	**0.50**	**0.55**	**0.61**	**0.67**
Large Cap		0.58	0.59	0.62	0.78	0.78	0.74	0.63	0.62	0.57	0.57	0.58	0.66	0.69	0.76	0.77
Small & Large Cap		0.51	0.50	0.48	0.61	0.68	0.64	0.54	0.54	0.51	0.51	0.52	0.58	0.62	0.69	0.72
Median																
Small Cap		**0.45**	**0.43**	**0.35**	**0.49**	**0.62**	**0.51**	**0.44**	**0.45**	**0.47**	**0.44**	**0.45**	**0.43**	**0.52**	**0.59**	**0.71**
Large Cap		0.53	0.52	0.59	0.74	0.76	0.72	0.65	0.65	0.56	0.53	0.55	0.62	0.64	0.69	0.76
Small & Large Cap		0.49	0.49	0.51	0.62	0.67	0.65	0.52	0.55	0.54	0.51	0.52	0.61	0.63	0.69	0.76
Standard Deviation																
Small Cap		**0.10**	**0.10**	**0.15**	**0.15**	**0.10**	**0.10**	**0.07**	**0.09**	**0.09**	**0.10**	**0.12**	**0.15**	**0.17**	**0.19**	**0.25**
Large Cap		0.13	0.14	0.10	0.13	0.09	0.09	0.11	0.08	0.07	0.08	0.10	0.09	0.12	0.16	0.07
Small & Large Cap		0.13	0.15	0.18	0.22	0.15	0.14	0.13	0.12	0.10	0.10	0.12	0.14	0.16	0.18	0.19

EXHIBIT NO.___(RGH-11B)

BLOOMBERG BETA ANALYSIS
SCE&G COMPARABLES

Notes and Sources:
All data are taken from Bloomberg.
List of comparable companies from EXHIBIT NO.___(RGH-12).
Companies were sorted from largest to smallest market cap (see EXHIBIT NO.___(RGH-4) for market cap); those in the top half of the sample were categorized as "Large Cap" and the remaining half were categorized as "Small Cap."
Adjusted beta based on two-year weekly regression versus S&P 500 Index.
Shaded companies were excluded from analysis due to lack of data.

[1]: As of 01/06/89 to 12/27/91.
[2]: As of 01/05/90 to 12/25/92.
[3]: As of 01/04/91 to 12/31/93.
[4]: As of 01/03/92 to 12/30/94.
[5]: As of 01/01/93 to 12/29/95.
[6]: As of 01/07/94 to 12/27/96.
[7]: As of 01/06/95 to 12/26/97.
[8]: As of 01/05/96 to 12/25/98.
[9]: As of 01/10/97 to 12/24/99.
[10]: As of 01/02/98 to 12/29/00.
[11]: As of 01/08/99 to 12/28/01.
[12]: As of 01/07/00 to 12/27/02.
[13]: As of 01/05/01 to 12/26/03.
[14]: As of 01/04/02 to 12/31/04.
[15]: As of 01/10/03 to 05/20/05.

EXHIBIT NO.__(RGH-12)

COMPARABLE COMPANY ANALYSIS
GAS-DISTRIBUTION SECTOR COMPANIES ACROSS VARIOUS DATA SOURCES

CRSP	Compustat	Value Line	Bloomberg	Zacks	Unique Companies	Excluded Companies		Final Sample
						Company	Reason	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
AGL Resources Inc	AGL Resources Inc	AGL Resources Inc	AGL Resources Inc	AGL Resources Inc	AGL Resources Inc	Atmos Corp	A	AGL Resources Inc
Atmos Energy Corp	Alabama Gas Corp	Atmos Energy Corp	Atmos Energy Corp	Atmos Energy Corp	Alabama Gas Corp	Equitable Resources Inc	A	Atmos Energy Corp
Atmos Corp	Atmos Energy Corp	Cascade Natural Gas Corp	Cascade Natural Gas Corp	Cascade Natural Gas Corp	Atmos Energy Corp	Markwest Hydrocarbon Inc	A	Cascade Natural Gas Corp
Cascade Natural Gas Corp	Cascade Natural Gas Corp	KeySpan Corp	Chesapeake Utilities Corp	Chesapeake Utilities Corp	Atmos Corp	New Jersey Res	A	Chesapeake Utilities Corp
Chesapeake Utilities Corp	Enbridge Inc	Laclede Group Inc	Delta Natural Gas Co Inc	Crosstex Energy LP	Cascade Natural Gas Corp	UGI Corp	A	Delta Natural Gas Co Inc
Delta Natural Gas Co Inc	Energen Corp	New Jersey Res	Energen Corp	Crosstex Energy Inc	Chesapeake Utilities Corp	Crosstex Energy Inc	A	Energen Corp
Enbridge Inc	Energy West Inc	Nicor Inc	Energysouth Inc	Delta Natural Gas Co Inc	Crosstex Energy Inc	Oneok Inc	A	Energy West Inc
Energen Corp	Laclede Gas Co	Northwest Natural Gas Co	Energy West Inc	Energen Corp	Crosstex Energy LP	RIO Vista Energy	A	Energysouth Inc
Energysouth Inc	Laclede Group Inc	Peoples Energy Corp	Nicor Inc	Energy West Inc	Delta Natural Gas Co Inc	Southwestern Energy Co	A	KeySpan Corp
Equitable Resources Inc	Michigan Consolidated Gas Co	Piedmont Natural Gas Inc	KeySpan Corp	Energysouth Inc	Enbridge Inc	Sempra Energy	A	Laclede Group Inc
KeySpan Corp	National Fuel Gas Co	Semco Energy Inc	Laclede Group Inc	Equitable Resources Inc	Energen Corp	WPS Resources Corp Holding Co	A	National Fuel Gas Co
Markwest Hydrocarbon Inc	New Jersey Res	South Jersey Industries Inc	New Jersey Res	KeySpan Corp	Energy West Inc	Enbridge Inc	B	Nicor Inc
New Jersey Res	Nicor Inc	Southern Union Co	Northwest Natural Gas Co	Laclede Group Inc	Energysouth Inc	Washington Gas Light Co	C	Northwest Natural Gas Co
Nicor Inc	Northwest Natural Gas Co	Southwest Gas Corp	Oneok Inc	National Fuel Gas Co	Equitable Resources Inc	Alabama Gas Corp	D	Peoples Energy Corp
Northwest Natural Gas Co	Pacific Enterprises Inc	UGI Corp	Peoples Energy Corp	Nicor Inc	KeySpan Corp	Crosstex Energy LP	E	Piedmont Natural Gas Inc
Piedmont Natural Gas Inc	Peoples Energy Corp	WGL Holdings Inc	Piedmont Natural Gas Inc	New Jersey Res	Laclede Gas Co	Laclede Gas Co	F	RGC Resources Inc
Southern Union Co	Peoples Gas Light & Coke Co		RGC Resources Inc	Northwest Natural Gas Co	Laclede Group Inc	Pacific Enterprises Inc	G	Semco Energy Inc
Southwest Gas Corp	Piedmont Natural Gas Inc		RIO Vista Energy	Oneok Inc	Markwest Hydrocarbon Inc	Southern California Gas Co	H	South Jersey Industries Inc
UGI Corp	RGC Resources Inc		Semco Energy Inc	Peoples Energy Corp	Michigan Consolidated Gas Co	Peoples Gas Light & Coke Co	I	Southern Union Co
Vectren Corp	Semco Energy Inc		South Jersey Industries Inc	Piedmont Natural Gas Inc	National Fuel Gas Co	Michigan Consolidated Gas Co	J	Southwest Gas Corp
WGL Holdings Inc	South Jersey Industries Inc		Sempra Energy	Semco Energy Inc	New Jersey Res			Vectren Corp
WPS Resources Corp Holding Co	Southern California Gas Co		Southern Union Co	Sempra Energy	Nicor Inc			WGL Holdings Inc
	Southern Union Co		Southwest Gas Corp	South Jersey Industries Inc	Northwest Natural Gas Co			
	Washington Gas Light Co		UGI Corp	Southern Union Co	Oneok Inc			
	WGL Holdings Inc		Vectren Corp	Southwest Gas Corp	Pacific Enterprises Inc			
			WGL Holdings Inc	Southwestern Energy Co	Peoples Energy Corp			
				UGI Corp	Peoples Gas Light & Coke Co			
				Vectren Corp	Piedmont Natural Gas Inc			
				WGL Holdings Inc	RGC Resources Inc			
					RIO Vista Energy			
					Semco Energy Inc			
					Sempra Energy			
					South Jersey Industries Inc			
					Southern California Gas Co			
					Southern Union Co			
					Southwest Gas Corp			
					Southwestern Energy Co			
					UGI Corp			
					Vectren Corp			
					Washington Gas Light Co			
					WGL Holdings Inc			
					WPS Resources Corp Holding Co			

Notes and Sources:
[1]: All companies from CRSP under SIC Code 4924 as of 12/31/04.
[2]: All companies from Compustat under SIC Code 4924 as of 3/27/05.
[3]: All companies from Value Line classified under Natural Gas (Distrib.) as of 3/27/05.
[4]: All companies from Bloomberg classified under Gas Distribution sub-group of Utility sector in the United States that are actively traded.
[5]: All companies from Zacks classified under Utility-Gas Distr industry of Utilities sector in the United States that are actively traded.
[6]: Companies found in [1] and/or [2] and/or [3] and/or [4] and/or [5].
[7]: Companies not included in the analysis.
[8]: Code for exclusion of company:
A: Gas Distribution does not constitute greater than or equal to 50% of company's revenues.
B: Foreign company.
C: Subsidiary of WGL Holdings Inc.
D: Subsidiary of Energen Corp.
E: Subsidiary of Crosstex Energy Inc.
F: Subsidiary of Laclede Group Inc.
G: In January 1998 Pacific Enterprises and Enova Corporation jointly acquired CES/Way International, Inc , which was subsequently renamed to Sempra Energy Services.
H: Subsidiary of Sempra Energy.
I: Subsidiary of Peoples Energy Corp.
J: Subsidiary of DTE Energy.
[9]: Sample used in the analysis.